

## The Gazette



## of India

PUBLISHED BY AUTHORITY

**No. 11] NEW DELHI, SATURDAY, MARCH 17, 1951****NOTICE**

The undermentioned Gazettes of India Extraordinary were published during the week ending the 14th March 1951 :—

S. No.	No. and Date	Issued by	Subject
1	S. R. O. 309, dated the 1st March 1951.	Ministry of Food and Agriculture.	Maximum prices of vegetable oil products.
2	S. R. O. 335, dated the 7th March 1951.	Ministry of Commerce and Industry.	Maximum and minimum prices of various grades and qualities of rubber.
3	S. R. O. 335A, dated the 8th March 1951.	Ditto.	The Newsprint Control Order, 1951.
4	S. R. O. 336, dated the 7th March 1951.	Ditto.	Further amendment in the Textile Commissioner's notification No. 9 (9)-Tex 1/49 (ii), dated 19th March 1949.
	S. R. O. 337, dated the 5th March 1951.	Ditto.	Restrictions on the movement of kapas or cotton from and to certain places.
5	S. R. O. 338, dated the 8th March 1951.	Ministry of Food and Agriculture.	Ex-factory price of sugar produced by certain factories.
6	S. R. O. 339, dated the 9th March 1951.	Ministry of Commerce and Industry.	Amendment in Textile Commissioner's notification No. 1(57)-Tex. 2/50, dated 21st August 1950.
	S. R. O. 340 & 341 dated the 9th March 1951.	Ditto.	Amendment in Open General Licences Nos. XXI and XVI, respectively.
	S. R. O. 342, dated the 9th March 1951.	Ditto.	Open General Licence No. XXII.
7	S. R. O. 343, dated the 10th March 1951.	Ditto.	Rescission of the Jute Goods (Export Control) Order, 1949.
8	S. R. O. 344, dated the 10th March 1951.	Ditto.	Amendment in the Newsprint Control Order, 1951.
9	S. R. O. 345, dated the 7th March 1951.	Ministry of Labour.	Minimum rates of wages payable in respect of certain categories of employees in the Ports of Madras, Bombay and Calcutta and in the Delhi Transport Service, Delhi.

Copies of the Gazettes Extraordinary mentioned above will be supplied on indent to the Manager of Publications, Civil Lines, Delhi. Indents should be submitted so as to reach the Manager within ten days of the date of issue of this Gazette.

**PART II—Section 3**

**Statutory Rules and Orders issued by the Ministries of the Government of India (other than the Ministry of Defence) and Central Authorities (other than the Chief Commissioners).**

**MINISTRY OF HOME AFFAIRS**

*New Delhi, the 8th March 1951*

**S.R.O. 348.**—In exercise of the powers conferred by clause (1) of article 243 of the Constitution, the President hereby directs that the Chief Commissioner, Andaman and Nicobar Islands, shall, subject to the control of the President, exercise the powers of a State Government under sections 15, 16, sub-section (1) of section 17A, sections 19, 19B, 20, 21, 24, 31 and 33 of the Andaman and Nicobar Islands Regulation, 1876 (Regulation III of 1876).

[No. 70/4/51-AN]

**E. C. GAYNOR, Dy. Secy.**

*New Delhi, the 13th March 1951*

**S.R.O. 349.**—In exercise of the powers conferred by the proviso to article 309 of the Constitution, the President hereby directs that the following further amendments shall be made in the Central Civil Services (Temporary Service) Rules, 1949, namely:—

After clause (f) of sub-rule (3) of rule 1 of the said Rules, the following new clause shall be added, namely:—

“(g) Such other categories of employees as may be specified by the Central Government by notification in the official Gazette.”

[No. 54/5/51-NGS.]

**P. M. SUNDARAM, Dy. Secy.**

**MINISTRY OF EXTERNAL AFFAIRS**

*New Delhi, the 7th March 1951*

**S.R.O. 350.**—In exercise of the powers conferred by sub-section (1) of section 213 of the Indian Merchant Shipping Act, 1923 (XXI of 1923), the Central Government hereby directs that the following further amendment shall be made in the Indian Pilgrim Ships Rules, 1933, the same having been previously published as required by sub-section (3) of the said section, namely:—

Rule 1 of the said Rules shall be re-numbered as sub-rule (1) of that rule and after sub-rule (1) as so re-numbered, the following sub-rule shall be inserted, namely:—

“(2) They extend to the whole of India.”

[No. 130-AWT.]

**LEILAMANI NAIDU, Dy. Secy.**

**MINISTRY OF COMMERCE AND INDUSTRY**

*Bombay, the 7th March 1951*

**S.R.O. 351.**—In exercise of the powers conferred on me by clause 20 of the Cotton Textiles (Control) Order, 1948, I hereby direct that the following further amendment shall be made in the Textile Commissioner's notification No. TCSI/20, dated the 22nd September 1949, namely:—

In the said notification—

(1) for sub-paragraph (4) of paragraph (5), excluding the note to the said sub-paragraph, the following shall be substituted, namely:—

“(4) No producer shall in any calendar month pack for sale in India a quantity of piece-dyed cloth which is more than 10 per cent. of the

total quantity of cloth packed by him for sale in India during the same month."

(2) In paragraph 6—

(a) in sub-paragraph (1) for the words "and washers" the words "washers and driers" shall be substituted.

(b) for sub-paragraph (2), excluding the note thereto, the following shall be substituted, namely:—

"(2) No producer shall in any calendar month pack for sale in India a quantity of printed cloth which is more than 10 per cent. of the total quantity of cloth packed by him for sale in India during the same month".

[No. 9(9)-Tex.1/49(I).]

T. P. BARAT,

Textile Commissioner.

*New Delhi, the 12th March 1951*

**S.R.O. 352.**—In exercise of the powers conferred by sections 4, 7, 9, 10, 13 and 19 of the Supply and Prices of Goods Act, 1950 (No. LXX of 1950), and all other powers enabling it in this behalf, the Central Government hereby directs that the following amendment shall be made in the notification of the Government of India in the late Ministry of Industry and Supply No. S.R.O. 503, dated the 2nd September 1950, namely:—

In sub-clause (ii) of clause (b) of the said notification for the words "Director General of Industries and Supplies" the words "Deputy Development Officer (Chemicals, Drugs and Plastics)" shall be substituted.

#### ORDER

ORDERED that a copy of the above Notification be communicated to all Governments of Parts A and B States (except Jammu and Kashmir), all Chief Commissioners of Part C States including Andaman and Nicobar Islands; all Ministries of the Government of India; Cabinet Secretariat; Prime Minister's Secretariat; Secretary to the President; the Indian Trade Commissioners; all Indian Embassies; the High Commissioner for India, London; His Majesty's Trade Commissioner in India; all Chambers of Commerce and Associations; the Director General of Commercial Intelligence and Statistics, Calcutta; the High Commissioner for India in Pakistan, Karachi; the High Commissioner for Pakistan in India, New Delhi; the Secretary, Indian Tariff Board and the Secretary, Planning Commission.

ORDERED also that it be published in the *Gazette of India*.

[No. PC-7(1)/50.]

P. S. SUNDARAM, Under Secy.

*New Delhi, the 17th March 1951*

**S.R.O. 353.**—In exercise of the powers conferred by sub-clause (a) of Clause 2 of the Iron and Steel (Control of Production & Distribution) Order, 1941, the Central Government is pleased to direct that the following further amendment shall be made in the Notification of the Government of India in the Ministry of Industry and Supply, No. I(1)-4(41), dated the 7th September, 1950, namely:—

To the Schedule annexed to the said Notification, the following entry shall be added, namely:—

"Director of Food & Civil Supplies, Vindhya Pradesh, Rewa."

[No. I(1)-4(87)]

**S.R.O. 354.**—In exercise of the powers conferred by sub-clause (b) of Clause 2 of the Iron and Steel (Scrap Control) Order, 1943, the Central Government is pleased to direct that the following further amendment shall be made in the Notification of the Government of India in the Ministry of Industry and Supply No. I(1)-4(78)A, dated the 6th January, 1951, namely:—

To the Schedule annexed to the said Notification, the following entry shall be added, namely:—

“Director of Food & Civil Supplies, Vindhya Pradesh, Rewa.”

[No. I(1)-4(87)/A.]

N. R. REDDY, Under Secy.

## MERCHANT SHIPPING

New Delhi, the 17th March 1951

**S.R.O. 355.**—In exercise of the power conferred by section 21 of the Indian Merchant Shipping Act, 1923, (XXI of 1923), and in supersession of the notification of the Government of India in the late Commerce Department, No. 101-M.II(18)/38, dated the 2nd January 1943, the Central Government is pleased to make the following rules to regulate the granting of certificates of competency to engineers (including motor engineers):—

### CHAPTER I

#### GENERAL

1. *Certificates of Competency*—Certificates of competency will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions.

2. The term ‘certificate’ in these rules means any certificate referred to in section 12 of the Indian Merchant Shipping Act, 1923. A list of the British Possessions issuing certificates [see section 12(b) of the Indian Merchant Shipping Act, 1923] is given in Appendix E.

3. Three kinds of certificates are granted by the Government of India:—

(a) Certificates of Competency (First and Second Class) as follows:—

(i) Steam Certificates entitling the holders to serve as engineers in the grade certified in steam ships.

(ii) Motor Certificates entitling the holders to serve as engineers in the grade certified in motor ships, i.e., ships propelled by internal combustion engines using oil, spirit, gas, or other similar motive agent.

(iii) Combined Steam and Motor certificates entitling the holders to serve as engineers in the grade certified in both steam and motor ships.

(b) *Certificates of Service*.—An officer who has attained the rank of Lieutenant (E) or Sub-Lieutenant (E) in His Majesty's Navy, or in the Indian Navy, or in the Royal Australian Navy, or in the Royal Canadian Navy, is entitled on payment of the appropriate fee (see paragraph 69), without examination, if a Lieutenant (E), to a certificate of service as First Class Engineer, and if a Sub-Lieutenant (E) to a Certificate of service as Second Class Engineer. These officers may be examined for certificates of competency on the same conditions as engineers in the Mercantile Marine.

An Officer who has attained the rank of Chief Artificer Engineer or Commissioned Engineer in His Majesty's Navy, is also entitled without examination to a certificate of service as Second Class Engineer, on payment of the appropriate fee.

Certificates of Service issued by a Commonwealth Country (including India) entitle the holders to go to sea, in the grades certified, as engineers of any ships in the Mercantile Marine, however propelled.

(c) *Extra First Class Engineer Certificates* (See paragraph 20).—The examinations for these Certificates are intended for officers who wish to prove their superior qualifications and to have certificates of the highest grade granted by the Central Government.

4. *Dominion or Colonial Local Certificates*.—The holder of a Dominion or Colonial Certificate of Competency not granted under the Merchant Shipping Act, or of a Certificate granted after examination on board one of His Majesty's Ships, who wishes to be examined for a Government of India Certificate of the same grade, must prove that he has performed the amount of service required by these regulations for that grade, and complied with the conditions laid down as to testimonials.

All Dominion, Colonial or Board of Trade Certificates of Competency, whether Local or issued under Order in Council, must be given up before a further Certificate is issued by the Government of India.

5. *Endorsement of Certificates*.—Holders of First or Second Class Certificates, Steam or Motor, will, after serving the necessary period of qualifying sea time in the other type of ship and passing the endorsement examination in the same class as for the certificate which they hold, be furnished with a combined Steam and Motor Certificate, entitling them to serve in either type of ship. Candidates holding a First Class Certificate for one type of ship who have passed the Second Class Examination only for the other type of ship will have their First Class Certificate endorsed accordingly.

## CHAPTER II

### QUALIFICATIONS REQUIRED FOR THE VARIOUS GRADES OF CERTIFICATES OF COMPETENCY

6. *Age*.—A candidate for a Second Class Certificate must be not less than 21 years of age and must satisfy the requirements specified in rules 7 to 46 as regards workshop service and sea service. A candidate for a First Class Certificate must be not less than 22½ years of age and must satisfy the requirements as to sea service.

#### A.—Workshop Service

7. *Type of work accepted*.—A candidate for a Second Class Certificate must prove that since reaching the age of 15 he has served satisfactorily for not less than four years as apprentice engineer or journeyman on work suitable for the training of a marine or mechanical engineer in the manufacture of machinery, such as work in workshops in which the manufacture and maintenance of substantial machinery is performed—e.g., marine engines (steam and oil), substantial auxiliaries (pumps, generators, etc.), steering gears, locomotives, industrial power plant, and substantial machines used in electric generating, textile, mining, milling or refining industries.

8. *Time served in workshops on other types of work* may be allowed to count in part towards the necessary four years of workshop service. Candidates who are permitted to include service of this kind in their workshop period will, however, be required to perform further service in an engineering workshop of a suitable character or on regular watch or day work at sea—the period of extra service being determined in each case by the Chief Examiner.

9. Not less than two of the four years' workshop service required should have been devoted to fitting, erecting or repairing of machinery of a suitable size, either i. the works or outside; the remaining two years may have been spent either (a) on work of this nature, or (b) on work in other branches of the trade, subject to the time allowance here specified, or (c) at an approved technical school, subject to the conditions specified in paragraphs 13 to 15.

Metal turning	...	Full time up to a maximum of two years.
Brass finishing (good heavy work)...		Full time up to a maximum of one year.
Boiler making or repairing of boilers.		Full time up to a maximum of one year.
Pattern making	...	Full time up to a maximum of one year.
Planing, slotting, shaping and milling.		Full time up to a maximum of one year.
Smith work	...	Full time up to a maximum of six months.
Coppersmith work	...	Full time up to a maximum of six months.
Work in drawing office as draughtsman or engineer.		Full time up to one year. When more than one year has been spent in the drawing office, only half the additional time will count.
Welding	...	Full time up to a maximum of three months.
Electric shop or repair work which does not qualify under para. 7 (excluding work of minor nature)		Full time up to one year, additional at half rate. Maximum total 18 months.

10. If the total period of the candidate's workshop service, as calculated in accordance with paragraph 9 is less than four years, the candidate may make up the deficiency by service at sea either (a) on day work as engineer on board foreign-going or home trade steam ships of not less than 66 nominal horse-power and or motor ships of not less than 373 brake horse-power, or (b) on regular watch on such ships. Two-thirds of the time so spent on foreign-going ships and four-ninths of the time so spent on home trade ships will be counted. No day work at sea performed before the age of 20 will be accepted.

11. *Service in Colonial and Foreign Workshops.*—Rules 7 to 9 apply to service in the United Kingdom or India only. Service in a Colonial or foreign workshop will not be accepted unless the Examiner is satisfied in each case that its value is substantially equivalent to that of service performed in the United Kingdom or India. In cases where the Examiner is not satisfied that the value is equivalent, he should refer the matter to the Chief Examiner.

12. *Testimonials.*—All candidates will be required to produce testimonials as to their workshop service. These testimonials must be signed by the employer or his representative, and must testify to the candidate's conduct and ability, and state the kind of work on which he was engaged and the period of time spent in each branch, e.g., fitting, erecting, turning, machine work, etc. Testimonials will be returned to candidates when the examination is completed.

13. *Technical Schools.*—Time spent at an approved day Technical School where there is an engineering laboratory is, subject to the conditions mentioned in Appendix D, accepted in lieu of workshop service, usually in the ratio of three years' attendance at the Technical School to two years workshop service, provided that the candidate has taken the full engineering course, and can produce the Principal's certificate for regular attendance at all the approved classes and for satisfactory progress. Where a candidate performs during the vacations of a school

course workshop service of the type referred to in paragraphs 7 and 9 for a continuous period of not less than four months, the school course and the time spent in the works will be assessed separately; the period spent in the workshops will be counted at the full rate, the remaining portion of the year being assessed at two-thirds rate.

14. Time spent in attending evening classes in engineering at approved Technical Schools will similarly be allowed to count under the following conditions:—

(a) Each candidate claiming an allowance for time spent in attending evening classes at a Technical School must produce a certificate signed by the Principal of the school to the effect that he has attended regularly at a definite class or classes, which should be specified, and has made satisfactory progress. This certificate must also state the total number of hours spent by the candidate in attending each class.

(b) Time spent by the candidate in attending such classes as have a direct bearing on the training of a marine or mechanical engineer will be reckoned at the rate of five hours to one day. The total number of days so obtained will then be accepted in lieu of two-thirds of the same period of workshop service.

15. Time spent in foreign technical schools will not be recognised except in special circumstances.

16. A list of approved Technical Schools and the time allowed for attendance at each is given in Appendix D.

#### *B.—Sea Service*

17. Candidates for Second Class Certificates or endorsements must, after completing the workshop service required in paragraphs 7 to 9 and the sea service (if any) accepted in lieu of workshop service under paragraph 10 have performed in foreign-going steam ships of not less than 66 nominal horse-power and/or motor ships of not less than 373 brake horse-power, the period of sea service set out in paragraph 23 as an engineer at sea on regular watch, i.e., at least eight hours per day. The conditions under which service performed in ships, other than foreign-going ship, is allowed to count towards the qualifying periods of sea service for Second Class Certificates are set out in paragraphs 27 to 34.

18. Candidates for First Class Certificates or endorsements must have completed the period of sea service set out in paragraph 24 on foreign-going ships of not less than 99 nominal horse-power and/or motor ships of not less than 560 brake horse-power, whilst in possession of a Second Class Certificate. The service should have been performed as senior engineer in charge of the entire watch, but service as second in seniority on ships propelled by two or more sets of engines, or on large single-screw ships where there are three or more engineers on regular watch at the same time, will also be accepted at full time value. Service below this rank on such ships will count at half rate. The conditions under which service performed in ships, other than foreign-going ships, is allowed to count towards the qualifying periods for First Class Certificates are set out in paragraphs 27 to 34.

19. The Government of India may, in special circumstances, allow a candidate who, in consequence of service abroad, has had no opportunity to obtain a recognised Second Class Certificate to be examined for a First Class Certificate, provided he is able to satisfy them as to the satisfactory character of his service. In general, such candidates will be required to prove that they have served for at least four years in steam ships of at least 99 nominal horse-power or motor ships of at least 560 brake horse-power, of which period at least 18 months must have been spent in charge of the entire watch on the boilers and

main propelling machinery of a steam ship or on the main propelling machinery of a motor ship. If any such candidate fails to pass the examination for the First Class Certificate but shows that he has reached the standard required for a Second Class Certificate, the Government of India may grant him such a certificate, but no part of the fee will be returned.

20. A candidate for an Extra First Class Engineer's Certificate must possess a First Class Engineers Steam Certificate or a First Class Motor Certificate endorsed for Steam or a First Class Combined Steam and Motor Certificate, or a First Class Certificate of Service but is not required to have performed any additional sea service.

21. Sea service means service on Articles. When part or the whole of the qualifying service has been performed in ships which for considerable periods have not been at sea, a statement or certificate from the owners of the ships should be produced showing the proportion of time actually spent at sea. If this time amounts to not less than two-thirds of the service required to qualify for the examination, the service will be accepted in full, but where the actual service at sea falls below this proportion, the deficiency must be made up by additional service at sea.

22. Service in ships where a watchkeeping engineer is, as part of his regular duties, required to do stoking or other works not usually performed by an engineer in the Mercantile Marine, cannot be accepted as qualifying.

23. The sea service required by these rules is, unless otherwise stated, service performed in ships propelled by engines of at least the horse-power specified for the respective grades of certificate. The nominal horse-power of a steam ship, as given on the Certificate of Registry, may in all cases be accepted by the Examiners; or it may be determined by the following formula:—

$$\text{N.H.P.} = \frac{(3H + D^2 \cdot \sqrt[3]{S}) \sqrt[3]{P}}{700}$$

where H = heating surface of main boilers in square feet, measured down to the level of the fire bars, but excluding the front tube plate.

$D^2$  = square of diameter of low pressure cylinder, or sum of squares of diameters of cylinders in non-compound engines, measured in inches.

S = length of stroke of engines in inches.

P = Pressure of main boiler in pounds per square inch.

24. *Periods of service.*—Subject to the conditions laid down in paragraphs 17 to 22, the periods of service which will qualify a candidate to sit for examination are as follows:—

(a) For Steam Certificates, First and Second Class, 18 months, of which at least 9 months must have been spent on the boilers and main propelling machinery of a steam ship.

This period of at least nine months must have included at least six months service on the boilers and six months' service on the main propelling machinery, but the service on the boilers and on the main propelling machinery may have been simultaneous.

The remaining nine months (or balance of nine months) may have been spent on the boilers of a steam ship, or on the main propelling machinery of a steam or motor ship, or on suitable auxiliaries of steam or motor ship (see paragraph 25), or on day work (see paragraph 26). This period of 9 months (or balance of 9 months) may be reduced by not more than three months in virtue of attendance at a marine department of a technical school (see paragraphs 44 and 45).



- (b) For Motor Certificates, First and Second Class, 18 months, of which at least six months must have been spent on the main propelling machinery of a motor ship.

The remaining 12 months (or balance of 12 months) may have been spent on the main propelling machinery of a steam or motor ship, or on suitable auxiliaries of a steam or motor (see paragraph 25), or to the extent of not more than six months on the boilers of a steam ship, or on day work (see paragraph 26). This period of 12 months (or balance of 12 months) may be reduced by not more than three months in virtue of attendance at a marine department of a technical school (see paragraphs 44 and 45).

- (c) For combined Steam and Motor Certificates First and Second Class, 21 months, of which at least:—

- (i) Nine months must have been spent on the boilers and main propelling machinery of a steam ship.

This period must have included at least six months' service on the boilers and six months' service on the main propelling machinery, but the service on the boilers and main propelling machinery may have been simultaneous; and

- (ii) Six months must have been spent on the main propelling machinery of a motor ship.

- (iii) The remaining six months (or balance of six months) may have been spent on the boilers of a steam ship or on the main propelling machinery of a steam or motor ship or on suitable auxiliaries of a steam or motor ship (see paragraph 25), or on day work (see paragraph 26). This period of six months or balance of six months may be reduced by not more than three months in virtue of attendance at a marine department of a technical school (see paragraphs 44 and 45).

- (d) For Motor Endorsement of a Steam Certificate, First and Second Class, a total of 21 months\*, which must have included at least six months' service on the main propelling machinery of a motor ship.

- (e) For Steam Endorsement of a Motor Certificate, First and Second Class, a total of 21 months\*, which must have included at least nine months' service on boilers and main propelling machinery of a steam ship.

This period of at least nine months must have included at least six months' service on the boilers and six months' service on the main propelling machinery, but the service on the boilers and on the main propelling machinery may have been simultaneous.

25. *Service on auxiliary machinery.*—Time served on auxiliary machinery run in conjunction with the main propelling machinery (i.e., on auxiliaries which are essential to the running of the main propelling machinery and/or boilers) will, subject to the conditions as regards the minimum service on boilers and main engines, be allowed to count in full towards the qualifying period of sea service. Time served on suitable auxiliaries run independently of the main propelling machinery will be allowed to count at half rate.

26. *Day work.*—Day work, by which is meant engineering work at sea other than that performed on regular watch, will be counted at half rate with a maxi-

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\*This total period of 21 months includes the 18 months' service required for the certificate.

imum allowance of six months towards the qualifying period of sea service but only for a Second Class Certificate or endorsement and only provided that the work has been carried out within the engine or boiler spaces of a steam or motor ship at sea.

27. *Home Trade Ships.*—Service in home or coasting trade is regarded as equivalent to two-thirds of the same period of service in foreign going ships, provided the service is of the character denoted in paragraphs 17 and 18.

28. In the case of Indian home trade and coasting voyages extending beyond a distance of 500 miles from the port of departure such service will count as foreign voyages, and will be reckoned as full time.

29. *Service in ships trading entirely abroad.*—Service in ships trading entirely abroad will be accepted as equivalent to service in foreign-going ships, provided that the distance between the ports visited during the course of the voyage is at least 500 miles. If the distance is less than 500 miles, the service will be accepted as equivalent only to service in the home trade i.e., it will be allowed to count at two-thirds rate.

30. *Lake or River Service.*—Service as watch-keeping engineer on a lake or river vessel will be accepted under the following conditions for a Steam or Motor Certificate, or a combined Steam and Motor Certificate, and will be counted at half rate (i.e., two months of lake or river service will be regarded as equivalent to one month foreign-going sea service) provided that:—

(a) in the case of a candidate for a Second Class Certificate, the service has been performed on lake or river steam vessels of not less than 66 nominal horse-power and/or motor vessels of not less than 373 brake horse-power, and the candidate has in addition to his lake or river service, had at least three months' qualifying service at sea, in a foreign-going ship or the equivalent service in the home trade; or

(b) in the case of a candidate for a First Class Certificate, the service has been performed on lake or river steam vessels of not less than 99 nominal horse-power and/or motor vessels of not less than 560 brake horse-power, and the candidate has, in addition to his lake or river service, had at least six months' qualifying service\* at sea, in foreign-going ships or the equivalent service in the home trade; and

(c) the Central Government is satisfied that service as watch-keeping engineer on a lake or river vessel is otherwise comparable to service on Foreign-going vessels.

31. *Service in tugs, dredgers, fishing vessels or pilot vessels.*—Service as engineer in sea-going tugs, dredgers or fishing vessels, and in pilot vessels when on their station or when going to or returning from their station, will be accepted towards the qualifying period of sea service at half rate.

32. Candidates for Second Class Certificates may perform all their qualifying sea service on regular watch in sea-going tugs, dredgers, fishing vessels or pilot vessels, of not less than 66 nominal horse-power, if steam, or 373 brake horse-power, if motor. Candidates for First Class Certificates must, however, in addition to their service in charge of the watch in sea-going tugs, dredgers, fishing vessels or pilot vessels, of not less than 99 nominal horse-power, if steam, or 560 brake horse-power, if motor, have served in a qualifying capacity (see paragraph 18) for not

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\*The conditions under which sea service must be performed in order to count towards the qualifying periods for Second and First Class Certificates are set out in paragraphs 17 and 18, respectively.

less than six months in a foreign-going ship or have performed equivalent service in the home trade.

33. *Service in yachts.*—Service as watch-keeping engineer at sea performed, in yachts of the horse-power referred to in paragraphs 17 and 18 will be accepted at two-thirds rate, provided the service satisfies the requirements set out in those paragraphs and the candidate's name and rank are entered on the ship's Articles.

34. A candidate for a First Class Certificate must, however, in addition to his service on yachts, have had at least three months' service in a qualifying capacity on board a foreign-going ship, or the equivalent service in the home trade, unless he has served for 27 months as First Engineer or for three years as a Second Engineer on a steam yacht of not less than 99 nominal horse-power and/or a motor yacht of not less than 560 brake horse-power.

35. *Testimonials.*—Every candidate must produce testimonials in respect of the qualifying period of his service signed, in each case, by the Chief Engineer under whom his service has been performed, stating his actual rank on watch, the number of engineers simultaneously on watch on the boilers and/or the main-propelling machinery, and the nature of the duties performed by him. When the candidate is a Chief Engineer, he should produce testimonials signed by the Engineer Superintendent, or by the Managing Owner, or Secretary of the Company. It is desirable that the whole of the candidate's sea service should be covered by testimonials certifying to his sobriety, experience, ability, and general good conduct.

36. It is desirable that testimonials signed by Chief Engineers be endorsed by the Engineer Superintendent or the Master or other representative of the owner. Testimonials signed only by the Company's Superintendent or other officials will, not, as a rule, be regarded as sufficient.

37. A specimen copy of the form of testimonial recommended is shown in Appendix C. Testimonials will be returned to candidates when the examination is completed.

38. *Physical defects.*—When a candidate is hard of hearing or suffers from any physical defect of such a nature as might interfere with the proper performance of his duties as an engineer on watch, the signatories of his testimonials should state whether such defect did in fact interfere in any way with the efficient discharge of the candidate's duties.

39. *Verification of sea service.*—Service which cannot be verified by proper entries in the Articles of Agreement of the ships in which the candidates have served cannot be counted. In all cases, the candidates' names must have been duly entered on the ship's Articles as Engineers in the ranks in which they were actually serving.

40. Discharges and testimonials may have to be forwarded to the Shipping Master for verification, and they must be handed in, together with the form of application, not less than one week before the date of the examination which the candidate desires to attend. In the absence of the necessary verification, the candidate cannot be examined.

41. Where, as in the case of the service of engineers in foreign ships, the length of service cannot be verified by the Shipping Master the testimonial of service must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognised official authority of that country, or by some responsible person having personal knowledge of the facts required to be established. Where the testimonial is not confirmed by a Consul or other official authority of the country referred to, it should be endorsed by an Indian or a British Consular official.

42. *Calculation of service.*—The candidate's service, as shown on his discharge, will be reckoned by the calendar month, i.e. the time included between any given day in any month and the preceding day of the following month, both inclusive. The number of complete months from the commencement of the period, ascertained in this way, should be computed, after which the number of odd days should be counted. The day on which the agreement commences, as well as that on which it terminates, should both be included, and all odd days added together and reckoned at 30 to the month.

43. *Penalty for misconduct.*—Candidates who have neglected to join their ships after having signed Articles, or who have deserted their ships after having joined, or who have been found guilty of gross misconduct, will be required to produce satisfactory proofs of two years subsequent service and good conduct at sea, unless the Government of India after having investigated the matter, should see fit to reduce the time.

44. *Marine Departments of Technical Schools.*—A candidate for a First or Second Class Certificate who, within two years from the date on which he desires to be examined, has attended an approved day course, comprising general mathematical and scientific instruction, at a marine department of a technical school recognised by the Government of India will be allowed to count the time so spent as equivalent to two-thirds of the same period spent at sea under the conditions set out in paragraph 24. Where the course has been taken at evening classes, the total number of hours during which attendance has been made at such classes will be divided by five and the result regarded as days of study.

45. The maximum remission of sea service in respect of attendance at marine departments of technical schools will be three months, and, in every case in which an allowance is made for time spent at an approved marine department of a technical school, the candidate will be required to produce the Principal's certificate for regular attendance at all the approved classes for a period of not less than one month, and for satisfactory progress. The candidate will also be required to produce his class notebooks and drawings, and should hand these to the Examiner together with the Principal's certificate at least one week before the date of the examination.

46. A list of the Technical Schools, the marine departments of which have been recognised by the Government of India for this purpose, is given in Appendix D.

### CHAPTER III

#### EXAMINATIONS

47. *Application for Examination.*—Candidates who have completed the necessary qualifying service and who desire to take the examination for a First or Second Class Certificate of Competency should fill up a form of application (Exn. 3) and pay the appropriate fee (see para. 69), at a Mercantile Marine Office, signing the declaration on the form of application in the presence of the Principal Officer. The form, properly filled in, together with the candidate's certificate of apprenticeship, testimonials, discharges, Certificate of Competency or Service, if any, etc. should be lodged with the Principal Officer at least one week before the day of examination. A candidate may however, if he prefers, submit his application and papers by post to the Principal Officer of the Mercantile Marine Department at the port at which he desires to be examined; he should remit the fee at the same time. If a candidate adopts this course, he will be required to sign his declaration in the presence of the Examiner at the opening of the examination. Candidates will be informed as soon as possible whether their applications have been accepted or not and, if accepted, candidates will be supplied with a copy of the rules to be observed during the examination.

**48. Foreign Engineers.**—Foreign engineers cannot be examined for a First Class Certificate unless they have performed the sea service stated in rule 18, with the requisite Certificate issued by a Commonwealth Country (including India). The service may have been performed in foreign vessels if the applicant can produce satisfactory testimonials as to conduct and character, and is able to prove that the service has been in the required capacities and that during the period of service he has held a Certificate of Competency issued by a Commonwealth Country (including India, of the grade required by the Rules (see Rule 41).

**49 Proof of Nationality.**—Every candidate for a certificate of competency of any grade will be required to produce proof of nationality, and for this purpose should produce a birth certificate or a certificate of naturalisation. Where such a certificate cannot be produced the candidate should furnish such documentary evidence of nationality, or of birth and nationality of parents, as he may be able to obtain. Alien candidates should produce some official document testifying to their nationality.

**50. Gaps in service.**—The Examiner should be particularly careful to ascertain that there are no gaps in the applicant's service during which his conduct is not properly accounted for, before he is allowed up for examination.

**51. Knowledge of English Essential.**—All candidates must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British ship.

**52. Age.**—Should any doubt exist as to the age of a candidate, he will be required to produce a certificate of birth.

**53. Payment of Fee.**—Candidates for examination and persons inquiring as to their eligibility for examination, will be required to pay the examination fee (see para. 69) before any step is taken towards inquiring into their services or testing their qualifications, etc. If any candidate is found not to be qualified, the fee will either be returned to him or placed to his credit until he is qualified.

**54. Penalty for Offering Gratuity.**—If a candidate offers gratuity to any officer of the Mercantile Marine Department, he will not be allowed to be examined for 12 months.\*

**55. Examination of Engine Room Artificers.**—Artificer Engineers, Chief Engine Room Artificers, Engine Room Artificers, and Mechanics in the Royal Navy may be examined for certificates of competency on the same conditions as Engineers in the Mercantile Marine.

**56. Application by Naval Officers.**—Applications from officers of the Royal Navy for certificates of service, or for permission to be examined for certificates of competency, must, in the case of officers on the active list, be made through the Commanding Officer to the Secretary to the Admiralty and, in the case of officers who are on half-pay or who have retired, direct to the Secretary to the Admiralty, who in either case will forward the applications to the Ministry of Transport.

**57. Artificer Engineers in the Royal Navy being Warrant Officers** should also make their applications through the Commanding Officer to the Secretary to the Admiralty. Warrant Engineers and Warrant Mechanics in the I. N. should make their applications through their C.O.S. to F.O.C. who will forward the applications to the P.O., M.M.D., Bombay or Calcutta.

Applications from officers on the active list in the Indian Navy must be made through the Commanding Officers to the Flag Officer Commanding. In the case of the Officers on half pay or officers who have retired, applications

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\*This penalty is additional to any penalty to which the candidate may be liable under the criminal law.

must be made direct to the Flag Officer Commanding. The Flag Officer Commanding will forward the applications to the Principal Officer, Mercantile Marine Department, Bombay or Calcutta as the case may be.

58. Chief or other Engine Room Artificers and Mechanicians, who have left the Royal Navy and who desire to be examined for Certificates of competency as Engineers in the Mercantile Marine, should apply to a Mercantile Marine Office. Men who are still serving in these ratings in the Royal Navy should make their applications through their Commanding Officers.

59. *Exemptions.*—The examinations for certificates of competency (First and Second Class) are divided into two parts as indicated in paragraphs 61 and 63 and candidates who have attended approved courses of instructions during their apprenticeship and have obtained certificates showing that they have passed the appropriate examination at the termination of the course will be granted exemption from the whole or part of Part A as shown in paragraphs 62 and 64.

60. *Approved Courses.*—The Government of India have approved the course of instructions leading to:—

- (i) Ordinary National Certificate of Mechanical Engineering of the United Kingdom.
- (ii) Engineering Cadetship Diploma awarded by the Ministry of Education in the United Kingdom;
- (iii) B.M.E. Degree of the College of Engineering and Technology, Bengal;
- (iv) B.E. Degree (Mechanical) and B.E. (Electrical) of the Bengal Engineering College, Sibpur (Howrah).

The Government of India will also recognise university degrees in engineering awarded in England and Wales, Scotland and Northern Ireland, provided that candidates who submit such degree-certificates, produce evidence that the course of study has covered the subjects of the Ministry's examination.

61. *Examination for Second Class Certificate.*—The syllabuses for this examination are given in Appendix A. Sets of specimen examination papers may be obtained from the Manager of Publications, Delhi. The examination is divided into two parts as follows:—

#### Part A.

- (i) General Engineering Science (Applied Mechanics) (one paper of three hours).
- (ii) Heat and Heat Engines (one paper of three hours).
- (iii) Drawing (one paper of six hours).

#### Part B.

- (i) (a) Electrotechnology  
(b) Elementary Naval Architecture. } One paper of two and a half hours.
- (ii) (a) Engineering knowledge (two papers each of three hours\*).
- (b) Oral.

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\*In the examination for a combined Steam and Motor Certificate, a third three hours paper in Engineering Knowledge is set.

62. Candidates may be exempted from Part A or some portion of it and may take the examination in separate parts as follows:—

- (a) A candidate who has attended an approved course of instruction (see Rule 59 and 60) covering not less than two of three subjects included in Part A, and has obtained a certificate stating that he passed the appropriate examination at the termination of the course, will be granted exemption from the subjects in Part A covered by the certificate.
- (b) A candidate may present himself either for the whole of Part A of the examination, or, if exempted under (a) above, from two subjects of the examination, for the remaining subject at any time after he has completed the necessary workshop service.
- (c) A candidate who has not been exempted under (a) above from Part A or a part of it, and who, when taking Part A of the examination passes in two subjects only, will not be required to take those subjects again and may present himself for re-examination in the remaining subject at any time. If he passes in one subject only, he must sit for the whole Part on re-examination.
- (d) A candidate may take Part B at any time after he has completed the necessary periods of qualifying workshop and sea service, provided he also takes at the same time the whole of Part A of the Examination or such subjects, if any, in that Part in which he has not already passed or from which he has not been exempted under (a) above.
- (e) A candidate will not be given a 'Pass' in Part B or in either Section of Part B unless he completes Part A at the same time as Part B or has previously completed it.
- (f) A candidate who completes, or has completed, Part A and who when taking Part B passes in Section (i) Electrotechnology and Elementary Naval Architecture, but fails in Section (ii) Engineering knowledge and Oral, will be given a pass in Section (i) and may sit for re-examination in Section (ii) at any time.
- (g) A candidate who completes, or has completed, Part A and who when taking Part B passes in Section (ii) Engineering knowledge and Oral, but fails in Section (i) Electrotechnology and Elementary Naval Architecture, will be given a pass in Section (ii) and may sit for re-examination in Section (i) at any time.

63. *Examination for First Class Certificate.*—The syllabuses for this examination are given in Appendix A. Sets of specimen examination papers may be obtained from Manager of Publications, Delhi. The examination is divided into two parts as follows:—

**Part A.**

- (i) General Engineering Science (Applied Mechanics) (one paper of three hours).
- (ii) Heat and Heat Engines (one paper of three hours).

**Part B.**

- (i) (a) Electrotechnology.  
(b) Elementary Naval Architecture. } One paper of two and a half hours.
- (ii) (a) Engineering knowledge (two papers each of three hours\*).
- (b) Oral.

\*In the examination for a combined Steam and Motor Certificate, a third three hours paper in Engineering knowledge is set.

64. Candidates may be exempted from Part A or a part of it and may take the examination in separate parts as follows:—

- (a) A candidate who has been exempted from the Second Class Examination in General Engineering Science or Heat and Heat Engines, or both, will also be exempted from this examination in either or both of these subjects.
- (b) A candidate possessing a Second Class Certificate is allowed to take either the whole of Part A or, if exempted under (a) above from one subject, the remaining subjects at any time.
- (c) A candidate who has not been exempted under (a) above from Part A or part of it and who, when taking Part A, passes in one subject only, will not be required to take that subject again and may sit for the remaining subject at any time.
- (d) A candidate may take Part B at any time provided he holds a Second Class Certificate and has completed the necessary period of qualifying sea service, and provided also that he takes at the same time either the whole of Part A of the Examination or such subject, if any in that Part, in which he has not already passed or from which he has not been exempted under (a) above.
- (e) A candidate will not be given a pass in Part B or in either Section of Part B unless he completes Part A at the same time as Part B or has previously completed it.
- (f) A candidate who completes or has completed Part A and who when taking Part B passes in Section (i) Electrotechnology and Elementary Naval Architecture, but fails in Section (ii) Engineering knowledge and Oral, will be given a pass in Section (i) and may sit for re-examination in Section (ii) at any time.
- (g) A candidate who completes, or has completed Part A and who, when taking Part B, passes in Section (ii) Engineering knowledge and Oral, but fails in Section (i) Electrotechnology and Elementary Naval Architecture, will be given a pass in Section (ii) and may sit for re-examination in Section (i) at any time.

65. *Examination for Endorsement of Second and First Class Certificates.*—The examination consists of—

- (a) One written paper of three hours in Engineering knowledge.
- (b) Oral.

The syllabuses for these examinations are given in the sections of Appendix A relating to these subjects.

66. *Marks Required for Pass.*—Candidates will be expected to obtain a minimum number of marks in each subject in the written examinations and not less than one-half of the total number of marks to secure a pass. In the oral examination a somewhat higher standard will be required. The result of the examination will be communicated to the candidate by the Examiner.

67. *Examination for Extra First Class Certificate.*—This examination covers the syllabuses for the First Class and Second Class Examinations and also that given in Appendix H.

Candidates will be permitted either to take the two parts at separate examinations in which case a candidate must first pass in Part A to qualify for entrance to Part B. On the other hand, a candidate who chooses to take the



who has been examined at one time and passes only in Part B will be eligible to sit for Part A at any future examination and will be exempt from further examination in Part B.

Candidates must obtain a minimum number of marks in each paper and not less than 60 per cent. of the total marks throughout the examination either for the full certificate or for Part A or B if taken separately. No certificate will be issued until the candidate has passed both parts of the examination.

68. *Place and Day of Examination.*—Arrangements have been made for holding the examinations at the ports of Bombay and Calcutta, which will generally commence on the second Monday in each month.

The time-tables of the different examinations are given in Appendix B.

69. *Fees.*—The following fees are payable on each occasion on which a candidate presents himself for an examination either for a Certificate of Competency or for the Endorsement of a Certificate of Competency:—

(A) Second Class Examination (Steam, or Motor, or combined Steam and Motor):

- (i) The full examination .....Rs. 20.
- (ii) Part (A) or Part (B) or a portion of either Part.....Rs. 10.
- (iii) The endorsement (Steam or Motor) Examination.....Rs. 10.

(B) First Class Examination (Steam, or Motor, or combined Steam and Motor):

- (i) The full examination .....Rs. 40
- (ii) Part (A) or Part (B) or a portion of either Part .....Rs. 20
- (iii) The endorsement (Steam or Motor) examination .....Rs. 20

(C) Extra First Class Examination:

- (i) The full examination .....Rs. 40
- If possessing only a First Class  
Certificate of service .....Rs. 80
- (ii) Part A or Part B when taken separately .....Rs. 20
- If possessing only a First Class  
Certificate of service.....Rs. 40

No part of the fee will be returned to candidates to take the examination or any part of it.

70. *Issue of Certificate.*—When the candidate has successfully completed all parts of his examination, he will receive a form authorising the Principal Officer of the Mercantile Marine Department to whom it is addressed to issue the Certificate, Certificates of Competency, or certificates of service, or Certificates of Competency of Imperial Validity issued under an Order in Council, of a lower grade, will not be returned to successful candidates. Other candidates will receive a record of their examination results on form Exn. 45. This form must be produced to the Examiner when a candidate next presents himself for examination.

71. *Service found to be insufficient.*—If, after a candidate has passed the examination, it is discovered on further investigation that his services are insufficient to entitle him to receive a Certificate, the Certificate will not be granted until the candidate has performed the amount of service in which he was deficient, and has been re-examined, unless the Government of India see fit to dispense with the re-examination.

72. *Copy of Lost Certificate.*—An applicant for a certified copy of a lost Certificate, must fill in a form of application, Exn. 23, giving the particulars required,

and hand it to the Principal Officer who issued the Certificate. A declaration as to the circumstances in which the Certificate was lost must be made by the applicant before the Principal Officer. No fee will be charged if the applicant can prove that the Certificate was lost through shipwreck or fire.

73. *Penalties for Failure in Examinations.*—Failure in subjects, ignorance of which might lead an Engineer to do something actually unsafe in the management of any part of a ship's machinery or to fail to do something essential to safety *e.g.*, questions on manipulation and reading of the water gauge, the danger of fire and explosion in steam and motor vessels, etc. will be regarded as failure in practical knowledge, and any candidate so failing will not be allowed to present himself for re-examination until he can produce proofs of further service at sea in a qualifying capacity. The period of the further service which will be required will be assessed in each individual case by the Chief Examiner but will not exceed six months.

74. Should a candidate fail through ignorance of fundamental principles or on account of general defectiveness in the examination, he will not be allowed to present himself for re-examination until a period of time to be fixed by the Chief Examiner has elapsed. Such period will in no case exceed three months but in the case of a subsequent failure on account of general defectiveness the penalty may in exceptional circumstances be increased to a maximum of six months.

75. Ordinarily, a candidate may present himself for re-examination at any time, but if he fails three times in Part A, or three times in Part B within any period of three months, he will be debarred from re-examination for a period, depending on the circumstances, of up to three months or exceptionally up to six months.

## APPENDIX A

### Syllabuses for the First and Second Class Examinations

#### FUNDAMENTAL KNOWLEDGE SUBJECTS

Candidates for a First Class Certificate are expected to show a knowledge of all the items in the syllabus, including the italicized items. Candidates for a Second Class Certificate will not be examined on the items italicized.

NOTES:—

(1) The problems may require a knowledge of the centimetra, gramme, second (C.G.S.) system, but will be such as can be solved by the knowledge of elementary algebra, geometry and plane trigonometry.

(2) A knowledge of the use of logarithms will be required.

(3) Formulae involving higher mathematics or constants required for the solution of any problem will be given.

(4) Graphical solutions will be acceptable where the analytical solution is not expressly stated to be required.

(5) Candidates may, if they wish, use slide rules for their calculations, but in each case a full statement of the steps leading to the calculations must be shown.

#### GENERAL ENGINEERING SCIENCE

(One paper of 3 hours. Six questions only out of nine to be attempted.)

Mass, volume, relative density (specific gravity). Areas and solids, application of Simpson's Rule to areas, volumes and centroids.

Displacement, linear and angular velocity. Uniform linear and angular acceleration. Relative velocity. Vectors. *Inertia*, *Newton's laws of motion*. *Momentum*. Triangle, Parallelogram and polygon of velocities or forces. Forces, moments and couples. *Impulsive force*. Centre of gravity. Conditions of equilibrium.

Work, power and energy. Solid friction. Inclined plane. Simple machines, velocity ratio, mechanical advantage and efficiency. *Rapson's slide*.

*Rotational Inertia*. *Moments of Inertia*. *Kinetic energy of rotating bodies*, Governors. Centrifugal force, its incidence in machine parts, including the rims of flywheels.

Transmission of power by gearing.

*Simple harmonic motion*.

Elementary hydrostatics and hydraulics. Principle of Archimedes. Basic ideas of fluid pressure and fluid pressure and fluid friction. Flow through pipes and orifices.

Stress, strain and elasticity. Hooke's Law. Moduli of elasticity. Simple tension, compression and shear.

*Strain energy*, *Stresses due to sudden loading*. Bending moment and shearing force diagrams for cantilivers and simply supported beams with concentrated, uniform, distributed or combined loading. Strength of beams. Torsion. Strength and stiffness of round shafts and power transmitted. *Helical springs* (close coiled). Combined direct and bending stress. Thin cylindrical and spherical shells. Strength of single, double and treble riveted lap and butt joints, or welded joints.

Stresses and strains in single or compound members due to change of temperature.

#### HEAT AND HEAT ENGINES

(One paper of three hours. Six questions only out of nine to be attempted.)

Temperature scales and their conversion. Linear and volumetric expansion or contraction due to change of temperature. Co-efficient of expansion. Specific heat. *Water equivalent*. Resulting temperature of mixtures at different temperatures. Conduction, Convection and radiation of heat. Boyle's Law and Charles' Law and their combination. Relations between specific heat at constant pressure and constant volume. Adiabatic expansion and compression  $p v^\gamma = \text{a constant}$ . *Relation between pressure, volume and temperature*. Change of state. Sensible heat, latent heat and superheat.

Energy, methods of measurement of energy and work. Mechanical equivalent of heat. Fuels and the generation of heat by combustion. Calorific value of fuels. *Air required for combustion*. Generation of steam. Dryness fraction of steam. Condensers and vacuum, advantage of using steam expansively.

*Carnot cycle*. Elementary principles and cycles of operation of steam and internal combustion engines and air compressors.

Calculation of work done with hypothetical pressure-volume diagrams, with constant steam pressure and with expansion according to the law  $p v = \text{a constant}$ .

Mean referred pressure. Cylinder volume ratios. Heat balances with reference to engine and boiler trials. Results to be expected from the application of high pressure steam, of compounding, super-heating and steam-jacketing.

*Elementary dynamics of the reciprocating steam and internal combustion engines*. Valve diagrams for steam engines. Cam diagrams for internal combustion engines.

*Crank-effort diagrams and flywheels. Elementary principles of the steam turbine. Efficiency of refrigerating machinery and co-efficient of performance.*

Boilers and evaporators.

Thermal, mechanical and overall efficiencies.

#### DRAWING

This subject is to be taken by candidates for Second Class Certificates only.

(One paper of six hours. A choice of two drawings will be given.)

The Drawing Paper will consist of a test of the ability to apply the principles of projection and candidates will be asked to draw a plan, elevation or section or a combination of these views of a piece of marine machinery from information supplied. All the required information for the completion of the drawing will be given in the question paper.

#### PRACTICAL KNOWLEDGE SUBJECTS

##### ELECTROTECHNOLOGY AND ELEMENTARY NAVAL ARCHITECTURE

(One paper of 2½ hours in two sub-sections, one for each subject. Candidates will be expected to attempt two questions only out of three in each sub-section.)

##### ELECTROTECHNOLOGY

The effects of an electric current—chemical, magnetic and heating. Primary cells and accumulators. Electrolysis. Simple magnetic and electromagnetic phenomena.

Application of electromagnetic induction phenomena to the generator.

Practical electrical units (limited to D.C. practice in the Second Class examination). Ohm's Law. Laws of resistance. Effects of temperature on resistance. Grouping of resistances. Mechanical and heat equivalents. Modes of current distribution for lighting and power purposes.

*A.C. frequency. Virtual or R. M. S. values of current and E.M.F. Peak values. Power and Power Factor. Single and threephase supply. Simple problems relating to electrical input, mechanical output and efficiency of motors on D.C. and A.C. systems.*

##### ELEMENTARY NAVAL ARCHITECTURE.

Displacement, wetted surface, block and prismatic co-efficients of fineness of displacement, co-efficients of fineness of waterplane. Tons per inch immersion. Alteration in draught owing to change in density of the water. Shift of Centre of Gravity by adding, removing, shifting or consuming fuel, ballast or cargo. Buoyancy, and effect of flooding a compartment. Total pressure on immersed surfaces. Centre of pressure. Comparison of skin resistance of hull with model at different speeds. Relation between speed of vessel and fuel consumption. Action of propeller, wake, slip, thrust and power. Admiralty and fuel co-efficients. Simple problems on strength of structural members to resist liquid pressure. Stability at small angles of heel. Moment of change of trim.

#### ENGINEERING KNOWLEDGE

Candidates for a combined Steam and Motor Certificates must be prepared to be examined in all the items (a) to (z), but those for a Steam Certificate or the Steam Endorsement of a Motor Certificate will not be examined in items (t) to (z) and those for a Motor Certificate or the Motor Endorsement of a Steam Certificate will not be examined in items (m) to (s). In addition, candidates for First Class

Candidates for First Class Endorsements, who will be expected to display a fuller knowledge of the different items in the Syllabus than candidates for a Second Class Certificate or Second Class Endorsement, must be prepared to be examined in items (aa) to (ce).

#### NOTES

1. The Engineering knowledge to be shown by candidates is that which is required for the use, operation and maintenance of the machinery, equipment and ship structure usually in the charge of the Engineer. A knowledge of the methods of manufacture of the various components is also required.

2. Candidates for Certificates and Endorsements are required to take a written examination followed by an oral examination.

3. The written examination for a Steam or Motor Certificate consists of two papers of three hours each—six questions only to be attempted out of nine in each paper.

4. The written examination for a combined Steam and Motor Certificate consists of three papers of three hours each—six questions only to be attempted out of nine in each paper.

5. The written examination for Steam or Motor Endorsement consists of one paper of three hours—six questions only to be attempted out of nine in the paper.

6. Where questions relating to main electric propelling plant are asked in the examination for a First Class Certificate or Endorsement, the nine questions set will be increased by the number of questions set on main electric propelling plant.

7. Candidates may be required to illustrate their answers by means of freehand sketches.

(a) The general effects of the various treatments on the physical properties of materials commonly used in the construction of marine engines and boilers, and the mechanical tests to which these materials are normally subjected.

(b) Heat and combustion. The properties of steam, fuel, lubricants and other liquids, gases and vapours used in machinery on board ship.

(c) The use, constructional details and principles involved in the action of the pressure gauge, voltmeter, ammeter, thermometer, pyrometer, barometer, salinometer, hydrometer and other meters commonly used by engineers on board ship.

(d) The causes, effects and usual remedies for incrustation and corrosion. Feed water and blow densities, and scale formation.

(e) (1) Constructional details and working principles of marine engines; methods of determining their B.H.P. The principle of working and methods of calibration of dynamometers and torsion meters.

(2) The methods of dealing with wear and tear of machinery and boilers. The alignment of machinery parts. The correction of defects due to flaws in material or accident. Temporary or permanent repairs in the event of derangement or total breakdown.

(f) Constructional details and principles of action of centrifugal, bucket and force pumps. The general requirements concerning feed, fuel, bilge and ballast pumping systems.

(g) The constructional arrangement, details and working of steering-engines and gears, refrigerating machinery, hydraulic machinery, and such steam and internal combustion engines as are used for emergency and auxiliary machinery on board ship.

(h) (1) The lay-out and working of electric light and power circuits; single-wire, two-wire, three-wire and ring main systems. The purpose of the balance. Use of the megger.

(2) General principles and functions of essential instruments. General construction and operation of switch gear and safety devices employed in the electrical equipment. Ignition-battery and coil and H.T. magneto. The care and maintenance of accumulators.

(3) Constructional arrangement, operation and maintenance of electric steering gears.

(4) At the candidate's option either—

(a) Constructional arrangement, operation, maintenance and general characteristic performance of A. C. Generators and motors commonly installed on board ship. The synchronising and parallel running of alternators; or

(b) Constructional arrangement, operation, maintenance and general characteristic performance of D.C. generators and motors commonly installed on board ship. Parallel running of shunt and compound dynamos.

(i) Application of the indicator. Calculation of mean pressure and horse-power. Fluctuation of pressure in the cylinder as shown by indicator diagrams.

(j) (1) Precautions against fire or explosions due to oil or gas. Flash point. Explosive properties of gas or vapour given off by fuel or lubricating oils when mixed with a quantity of air. The danger of leakage from oil tanks, pipes, gas producers, and vaporisers, particularly in bilges and other unventilated spaces. The action of wire gauze diaphragms and the places in which such devices should be fitted.

(2) Spontaneous combustion of coal. Explosive properties of gas given off by coal. Ventilation and storage of coal.

(3) Fire detection. Methods of dealing with fire. Action and maintenance of mechanical and chemical fire extinguishers and other fire-fighting appliances, respirators and safety lamps.

(k) The usual structure of an ordinary steel ship. The preservation in good condition of bilges, bunkers, tanks under boilers, and water-tight doors.

(l) The common terms used in the measurement of steel ships, for example, length between perpendiculars, breadth overall, moulded depth, draught and freeboard.

(m) The methods of constructing marine steam engines and boilers, the processes to which the several parts are submitted, or which are incidental to their manufacture, and the methods employed in fitting the machinery on board ship.

(n) The various types of propelling and auxiliary steam engines now in use, the functions of each important part and the attention required by the different parts of the machinery on board ship.

(o) The methods of testing and altering the setting of the steam admission and exhaust valves, and the effect produced in the working of the engines by definite alterations in the settings of the valves.

(p) The constructional details and working of evaporators feed water heaters and feed water filters.

(q) Marine boilers of various modern designs; the manner of staying them, and also the prevention of movement of boilers when vessels are pitching or rolling.

**The determination by calculation of suitable working pressures for boilers of given dimensions.**

**(r) The use and management of boiler fittings and mountings, with special reference to water gauges and safety valves. Precautions necessary when raising steam and operating stop valves, with particular reference to the danger arising from water hammer action.**

**(s) Constructional details, operation and maintenance of installations generally employed for assisting draught superheating steam and burning coal or oil fuel.**

**(t) The principles underlying the working of internal combustion engines. The differences between various types of engines. Constructional details of internal combustion engines in general use.**

**(u) The nature and properties of the fuel and lubricating oils generally used in internal combustion engines. The supply of air and fuels to cylinders of engines of different types. The constructional details of apparatus for carburetting or atomising the fuel. The means of cooling the cylinders and pistons. Constructional details and working of air compressors.**

**(v) The methods of constructing marine internal combustion engines. The processes to which the several parts are submitted or which are incidental to their manufacture, and the methods employed in fitting the machinery on board ship.**

**(w) Starting and reversing arrangements and the various operations connected therewith.**

**(x) The attention required for the operation and maintenance of the various parts of machinery. The use and management of valves, pipes, connections and safety devices employed.**

**(y) Enumeration and description of defects arising from working of machinery. The remedy for such defects.**

**(z) Constructional details and management of auxiliary steam boilers, their fittings and mountings. Constructional details and management of auxiliary machinery.**

*Candidates for First Class Certificates and Endorsements only*

**(aa) The maintenance and working condition of machinery and appliances placed in the charge of a Senior Engineer. The attention required to prevent breakdowns and defects. The usual repairs and renewals required; supervision and inspection of machinery and boilers on board ship. Preparation of boilers and machinery for survey.**

**(bb) Section (h) (4) both sub-sections and also the general lay-out and operation of electric main propelling plant, the sequence of operations for starting, stopping, reversing and changing speed.**

**(cc) The practical requirements to ensure ship's stability at sea. Management of feed, fuel, ballast and bilge tanks. Filling and emptying tanks at sea. The effect of free liquid surfaces in tanks. Bilged compartments.**

**(dd) The recognition of irregularity in the running of engines from indicator diagrams. The rectification of these irregularities. Illustration by means of sketches of the change produced in the diagram due to an alteration in the setting or working of the valves or any other factors.**

*Candidates for First Class Steam and combined Steam and Motor Certificates and First Class Steam Endorsements only*

**(ee) The principles and practice of surface condensation, super-heating and the working of steam expansively. The economic and efficient use of coal and oil fuel.**

## ORAL EXAMINATION

The oral Examination will be largely based upon the practical knowledge of subjects of the Examination and will include questions on the management of engines and boilers at sea, the duties of the supervising engineer, the work to be done to engines, boilers and auxiliary machinery in port and the periodical examination of the working parts.

Candidates should also be well acquainted with machinery and boiler casualties which may occur at sea and be able to state how these may be prevented and remedied.

### APPENDIX—B

#### Time-tables of Examinations SECOND CLASS AND FIRST CLASS

Day	Part of Examination	Morning session	Afternoon session
First day	B	Engineering Knowledge. One paper 10 A.M. to 1 P.M.  NOTE.—Candidates for Endorsement do not take this paper.	Engineering Knowledge. One Paper 2 P.M. to 5 P.M.  NOTE.—Separate papers are set for Steam and Motor candidates.
Second day	A	General Engineering Science. One paper 10 A.M. to 1 P.M.	Heat and Heat Engines. One paper. 2 P.M. to 5 P.M.
Third day	B	(i) Electrotechnology. (ii) Elementary Naval Architecture. One paper. 10 A.M. to 12-30 P.M.	Engineering Knowledge. One paper. 2 P.M. to 5 P.M. NOTE.—To be taken by candidates for combined Steam and Motor Certificates only.
Fourth day	A	Engineering Drawing (for Second Class only). 10 A.M. to 4-30 P.M. NOTE.—An interval of $\frac{1}{2}$ hour may be allowed.	
	B	The Oral Examination will be taken on completion of the written papers.	

#### EXTRA FIRST CLASS

Tuesday	A	Engineering Knowledge. One paper. 10 A.M. to 1 P.M.	Engineering Science. (Mechanics and Hydraulics). One paper. 2 P.M. to 5 P.M.
Wednesday	A	Heat and Heat Engines. One paper. 10 A.M. to 1 P.M.	
	B		Essay. One paper. 2 P.M. to 5 P.M.
Thursday	B	Machine Design. (Drawing). One paper. 10 A.M. to 4 P.M.	
Friday	B	Electrotechnology. One paper. 10 A.M. to 12-30 P.M.	Naval Architecture. One paper. 2 P.M. to 4-30 P.M.



# APPENDIX C

## Specimen Form of Testimonial

Name and address of  
Shipowner or Company.

I certify that the following is a full and true statement of the sea service performed by Mr. .... under my supervision on board the\*.....  
.....O. No. ....

Period of service Dates		Rank of Officer and actual seniority on watch	Type of main engines and boilers. Single or twin screw	Nature of duties for appropriate description see below
From	To			

Report as to ability.....

Report as to conduct.....

Report as to sobriety.....

Signature of Chief Engineer.....

Remarks (if any).....

Signature of { Engineer Superintendent  
or  
Master or other representative of Owner.....

### Description of duties.

#### I. On fitter's work either by day or regular watch.

- (a) Within main engine and boiler spaces.
- (b) Outside main engine and boiler spaces.

#### II. (a) On refrigerating or other machinery not essential to the propulsion of the vessel.

- (b) On auxiliary engines separated from main propelling units but worked in conjunction therewith.

#### III. On regular watch on Main Engines as—

- (a) First Engine Room Assistant under the Senior in full charge.
- (b) Second Engine Room Assistant.
- (c) Junior Engine Room Assistant.

#### IV. On regular watch on Main Boilers.

- (a) In charge of all stokeholds.
- (b) In charge of a section or one stokehold only.
- (c) As Boiler Room Assistant.

#### V. On regular watch on Main Engines and Boilers simultaneously—

- (a) In full charge of the entire watch.
- (b) As First Assistant to the Senior in full charge.
- (c) As Junior Assistant.

NOTE.—It is recommended that this form should be used when the Engineer reported on, or when the Chief Engineer, leaves a ship.

\*Steam or motor ship. Name of ship and official number.

## APPENDIX D.

### Technical Schools recognised by the Government of India

The following is a list of Technical Schools attendance at which is recognised by the Government as affording remission of some period of the service required to qualify a candidate for examination for a certificate of competency as Engineer.

#### (1) DAY CLASSES

When nothing is stated to the contrary, time spent in attending the day classes in Mechanical Engineering of a recognised Technical School is accepted as equivalent to workshop service in the ratio of three years of the former to two of the latter, provided the applicant was over 15 years of age and can produce the Principal's certificate for continuous and regular attendance at all the approved classes and for satisfactory progress. Such time cannot be accepted as equivalent to more than two years' workshop service.

#### *Name of School or Institution.*

**Aberdeen.**—Robert Gordon's College, Aberdeen.

**Acton.**—Technical College, Acton.

**\*\*Adelaide.**—School of Mines.

**\*\*Auckland, N. Z.**—University College, Auckland.

**\*\*Auckland, N. Z.**—University College, Auckland.

**\*\*Ballarat.**—School of Mines, Ballarat.

**Belfast.**—College of Technology, Belfast.

**\*Benares.**—Hindu University, Benares, India.

**\*\*\*Bengal.**—College of Engineering and Technology, Bengal, India.

**\*Birmingham.**—University of Birmingham.

†**Birmingham.**—City of Birmingham Municipal Technical College, Suffolk Street, Birmingham. (Two years' full time course and after-noon classes.)

**Blackburn.**—Municipal Technical College, Blackburn.

†**Bombay.**—Victoria Jubilee Technical Institute, Bombay.

**Bradford.**—Municipal Technical College, Bradford.

**Brighton.**—Municipal Technical College, Brighton.

**\*\*Brisbane.**—Technical College, Brisbane.

**Bristol.**—Merchant Venturers Technical College, Bristol.

**Bristol.**—University of Bristol.

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\*Time spent by students of the Electrical Engineering Department on work similar to that in the Mechanical Engineering Department to count as equivalent. One third, only, of the time to be counted, with maximum allowance of one year.

\*\*Time spent at classes in mechanical or electrical engineering will be accepted at half value up to a maximum of eighteen months.

\*\*\*Half time spent in the Degree and/or Diploma Courses of Mechanical Engineering to count up to a maximum of two years.

†Time spent at afternoon classes to count as equivalent to two-thirds of the same period of workshop service, five hours in the classes being reckoned as equivalent to one day.

‡Half-time will be accepted for either the mechanical or the electrical engineering courses with a maximum of two years.

- @Calcutta.**—College of Engineering and Technology, Bengal.  
**Cambridge.**—University of Cambridge.  
**Cardiff.**—The Technical College, Cardiff.  
**Cardiff.**—University College of South Wales and Monmouthshire, Cardiff.  
**†\*\*Christchurch, N. Z.**—Canterbury College, Christchurch.  
**Cork.**—Crawford Municipal Technical Institute, Cork.  
**Dagenham.**—South East Essex Technical College.  
**¶Dartmouth.**—Royal Naval College, Dartmouth.  
**§Devonport.**—Royal Naval Engineering College, Devonport.  
**Dublin.**—University College, Dublin.  
**Edinburgh.**—Heriott-Watt College, Edinburgh.  
**¶Glasgow.**—Royal Technical College, Glasgow.  
**¶Glasgow.**—James Watt Engineering Laboratories, Glasgow University.  
**\*Guindy.**—College of Engineering, Guindy, Madras.  
**†Hobart.**—University of Hobart.  
**Huddersfield.**—Huddersfield Technical College, Huddersfield.  
**Hull.**—Municipal Technical College, Hull.  
**‡India.**—Indian Mercantile Marine Training Ship "Dufferin".  
**Insein.**—Government Technical Institute, Insein.  
**†Karachi.**—Nadirshaw Edulji Dinshaw Civil Engineering College, Karachi.  
**\*Lahore.**—MacLagan Engineering College, Lahore.  
**Leeds.**—The University of Leeds.  
**Liverpool.**—The Faculty of Engineering, The University of Liverpool.  
**London.**—Battersea Polytechnic, London, S. W. 11.  
**‡‡London.**—Faraday House Electrical Engineering College, Faraday House  
 Southampton Row, London, W. C. 2.  
**London.**—Imperial College of Science and Technology [City and Guilds (Engi-  
 neering) College], London, S. W. 7.  
**§§London.**—King's College, Strand, London, W. C. 2.  
**London.**—London County Council School of Engineering and Navigation, Poplar  
 14.  
**¶¶London.**—Northampton Polytechnic Institute, Clerkenwell, London, E.C.1.

**§Time to count in full up to three years**

**¶¶A complete session to count as six months.**

**@ Half the time spent in Degree and/or Diploma courses of Mechanical Engi-  
 neering subject to a maximum of 2 years.**

**\*Time spent by students of the Electrical Engineering Department, on wor-  
 k similar to that in the Mechanical Engineering Department, to count as equivalent**

**†Time spent at classes in mechanical or electrical engineering will be accepted  
 at half value up to a maximum of eighteen months.**

**‡One third, only, of the time to be counted, with maximum allowance of one  
 year.**

**‡‡Half, only, of the time to be counted.**

**§§Two-thirds of time to count, with a maximum of two years for three-yea-  
 students, and two years and eight months for four-year students who have spent  
 three summer sessions in the works of a maker of steam engines, for which no  
 separate allowance is claimed.**

**¶¶Two-thirds to count, with maximum of two years eight months.**

**\*\*Time spent at afternoon classes to count as equivalent to two-thirds of the  
 same period of workshop service, five hours in the classes being reckoned  
 equivalent to one day.**

*London.*—Polytechnic School of Engineering, Regent Street, London, W.1.

*London.*—Queen Mary College (University of London), Mile End Road, London, 1.

\**London.*—St. Olave's Grammar School, London, S. E. 1.

*London.*—University College, Gower Street, London, W. C. 1.

*London.*—Woolwich Polytechnic, S. E. 18.

*Loughborough.*—Loughborough College, Leicestershire.

*Manchester.*—Manchester Municipal College of Technology.

*Manchester.*—University of Manchester.

†*Melbourne.*—Footscray Technical College, Melbourne.

†*Melbourne.*—Swinbourne Technical College, Melbourne.

†*Melbourne.*—Technical College (Working Men's), Melbourne.

†*Melbourne.*—University of Melbourne.

\*\*\**Natal.*—Natal University College (Howard College), Durban.

*Newcastle-on-Tyne.*—Armstrong College, Newcastle-on-Tyne.

\*\**Newcastle-on-Tyne.*—Rutherford Technical College, Newcastle-on-Tyne.

‡*Newcastle, New South Wales.*—Technical School, Newcastle.

§§*Osborne.*—Royal Naval College, Osborne.

\**Oundle.*—Engineering Department of Oundle School, Northants.

*Paisley.*—Technical College, and School of Art, Paisley.

*Perth, Western Australia.*—University of Western Australia, Perth.

††*Poona.*—College of Engineering, Poona, Bombay.

*Portsmouth.*—Portsmouth Municipal College, Portsmouth

||*Preston.*—Harris Institute, Preston.

‡*Queensland.*—Technical School, Ipswich, Queensland.

‡*Queensland.*—University of Queensland, Queensland.

*Salford.*—Royal Technical Institute, Salford.

*Sheffield.*—University of Sheffield.

§*Sibpur.*—Bengal Engineering College, Sibpur.

*Southampton.*—University College, Southampton.

*Sunderland.*—Sunderland Technical College, Sunderland.

\*One-third of time to count, with maximum of one year.

\*\*A complete session to count as four months.

††Half time to count with a maximum of 18 months.

§§One-third, only, of the time to be counted.

‡Half time to count with a maximum of two years.

\*\*\*Two-thirds time will be accepted for either the mechanical or electrical engineering courses with a maximum of two years.

||Two-thirds of time to count with a maximum of two years.

‡Time spent at classes in electrical engineering will be accepted at half value up to a maximum of eighteen months.

§Two-thirds time will be accepted for either the mechanical or electrical engineering courses with a maximum of two years.

**\*\*Surat.**—Surat Parsi Technical and Industrial Institute, Surat.

**\*\*Surat.**—F. S. Parekh Technical Institute, Surat.

**Swansea.**—Swansea Technical College, Swansea.

**†Sydney.**—University of Sydney.

**†Sydney.**—Technical College, Sydney.

**\*\*Tonbridge.**—Engineering Department of Tonbridge School.

**West Ham.**—West Ham Municipal College, West Ham.

**§Wigan.**—Wigan and District Mining and Technical College, Wigan.

**§Wolverhampton.**—Wolverhampton and Staffordshire Technical College.

## (II) EVENING CLASSES

Time spent in attending Evening Classes in Engineering at recognized Technical Schools is accepted as equivalent to workshop service, five hours in the classes being reckoned as equivalent to one day, and two-thirds of the number of days so obtained counting as workshop service, subject to the provisions laid down in paragraph 14.....

### *Name of School or Institution*

**Aberdeen.**—Robert Gordon's College, Aberdeen.

**Acton.**—Technical College, Acton.

**Barrow-in-furnace.**—Municipal Technical College, Barrow-in-furnace.

**Belfast.**—College of Technology, Belfast.

**Birkenhead.**—Technical College, Birkenhead.

**||Birmingham.**—City of Birmingham Municipal Technical School, Suffolk Street, Birmingham.

**Blackburn.**—Municipal Technical College, Blackburn.

**Bootle.**—Municipal Technical College, Bootle.

**Brighton.**—Municipal Technical College, Brighton.

**Bristol.**—Merchant Venturers Technical College, Bristol.

**||Cardiff.**—City of Cardiff Technical School.

**Coatbridge.**—Technical College, Coatbridge.

**-Dagenham.**—South East Essex Technical College.

**Darlington.**—Technical College, Darlington.

**Derby.**—Technical College, Derby.

**Dublin.**—Bolton Street Technical Institute.

**Dudley.**—Dudley and Staffordshire Technical College, Dudley.

**Dundee.**—Dundee Technical College, Dundee.

**Edinburgh.**—Heriott-Watt College, Edinburgh.

**Gateshead.**—Senior Technical & Commercial Institute, Gateshead.

**Glasgow.**—Royal Technical College, Glasgow.

**††Goole.**—Goole Technical Institute, Goole.

**\*\*One-third** time to count with a maximum of one year.

**†**Time spent at classes in electrical engineering will be accepted at half value upto a maximum of eighteen months.

**||**Afternoon classes also count in the same proportion.

**§**Two-thirds time will be accepted for either the mechanical or electrical engineering courses with a maximum of two years.

**††**Time spent in attending the First Year Senior Evening Course in Mechanical Engineering will be accepted as equivalent to workshop service only when the remaining two years of the course for the ordinary national certificate have been completed at the Municipal Technical College, Hull, or at one of the other institutions mentioned in (II).

*Greenock.*—Greenock Technical School, Greenock (known as Watt Memorial School).

*Huddersfield.*—Huddersfield Technical College, Huddersfield.

*Hull.*—Municipal Technical College, Hull.

*Leeds.*—College of Technology, Leeds.

*Liverpool.*—The City of Liverpool Technical College, Liverpool.

*London.*—Battersea Polytechnic, London S. W. 11.

*London.*—Borough Polytechnic Institute, 103, Borough Road, London, S. E. 1.

*London.*—Enfield Technical College.

*London.*—London County Council School of Engineering and Navigation, Poplar, E. 14.

*London.*—Northampton Polytechnic Institute, Clerkenwell, E. C. 1.

*London.*—The Polytechnic School of Engineering, Regent Street, London, W. 1.

*London.*—Willesdon Technical College, London.

*London.*—Woolwich Polytechnic, S. E. 18;

Hackney Technical Institute, E. 8;

Paddington Technical Institute, W. 9;

South-East London Technical Institute, S. E. 4;

Wandsworth Technical Institute, S. W. 18.

*Londonderry.*—Municipal Technical College, Londonderry.

*Loughborough.*—Loughborough College, Leicestershire.

*Manchester.*—The Manchester Municipal School of Technology, Manchester.

*Newcastle-on-Tyne.*—King's College, Newcastle-on-Tyne.

*Newcastle-on-Tyne.*—Rutherford Technical College, Newcastle-on-Tyne.

*Newport, Mon.*—Technical College and Institute.

*Paisley.*—Technical College and School of Art, Paisley.

*Preston.*—Harris Institute, Preston.

*Salford.*—Salford Royal Technical Institute, Salford.

*Sheffield.*—Department of Applied Science, University of Sheffield, St. George's Square, Sheffield.

*Southampton.*—University College, Southampton.

*South Shields.*—The Marine School, South Shields.

*Swansea.*—Swansea Technical College, Swansea.

*West Hartlepool.*—West Hartlepool Technical College.

*Wigan.*—Wigan and District Mining and Technical College.

*Wolverhampton.*—Wolverhampton and Staffordshire Technical College.

### (III) MARINE DEPARTMENTS OF TECHNICAL SCHOOLS

When nothing is stated to the contrary, time spent in the Marine Department of a Technical School recognised as suitable for the training of Marine Engineers will, subject to the provisions laid down in paragraph.....and.....allowed to count as sea service in the ratio of three months at the Technical

School to two months at sea, time so spent not to be accepted as equivalent to more than three months' sea service.

*Name of School or Institution*

*Aberdeen.*—Robert Gordon's Technical College, Aberdeen.

*Cardiff.*—The Technical College, Cardiff.

*Dundee.*—Dundee Technical College and School of Art.

*Glasgow.*—Stow College, School of Engineering, Glasgow.

*Greenock.*—Watt Memorial School, Greenock.

*Hull.*—Municipal Technical College, Hull.

*Leith.*—Leith Nautical College, Leith.

*Liverpool.*—The City of Liverpool Technical College, Byrom Street, Liverpool.

*London.*—London County Council School of Engineering and Navigation, Poplar, E-14.

*Southampton.*—University College.

*South Shields.*—The Marine School, South Shields.

APPENDIX E

**List of Dominion and Colonial Certificates as Engineer recognised by Order in Council which are of the same force as those granted by the Ministry of Transport (U.K.).**

NOTE.—With the exception of those made after 1906, all of the Orders in Council enumerated below were consolidated and superseded by an Order in Council, dated 9th May 1891, which, as subsequently amended by an Order in Council of 22nd October, 1906, and by the Order of the 11th October, 1923, relating to Australia, remains in force.

Dominion or Colony	Certificates		Date of original Order in Council	Date from which Order in Council takes effect
	By whom granted	Description*		
†Victoria	†Marine Board	1st Class Engineer ; 2nd Class Engineer.	} 30 Mar. 1871	4 Jan. 1870
Canada	The Minister of Marine & Fisheries.	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.		
New Zealand	Marine Department.	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	} 9 Aug. 1872	1 May 1872
†New South Wales	†Department of Navigation	1st Class Engineer ; 2nd Class Engineer.	} 30 Aug. 1873	16 June 1872

Dominion or Colony	Certificates		Date of original Order in Council	Date from which Order in Council takes effect
	By whom granted	Description*		
†South Australia	Marine Board	1st Class Engineer ; 2nd Class Engineer.	12 May 1874	12 May 1874
†Tasmania	The Governor	1st Class Engineer ; 2nd Class Engineer.	12 Feb. 1876	1 April 1876
‡Bengal	Dept. of Commerce, Govt. of India.	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	27 June 1876	27 June 1876
Newfoundland	Governor	1st Class Engineer ; 2nd Class Engineer.	19 July 1910	19 July 1910
‡Bombay	Dept. of Commerce, Govt. of India.	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	11 July 1877	11 July 1877
India	Dept. of Commerce, Govt. of India.	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	17 Dec. 1931	1 April 1929
†Queensland	Marine Board	1st Class Engineer ; 2nd Class Engineer.	28 March 1878	1 Oct. 1877
Hongkong	Governor	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	31 Dec. 1883	1 Jan. 1884
Straits Settlements	Governor	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	1 May 1890	1 Aug. 1888
Commonwealth of Australia.	Secretary, Dept. of Commerce, Marine Branch, Melbourne.	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	11 Oct. 1923	1 Oct. 1923
Union of South Africa.	Dept. of Customs.	1st Class Engineer ; 2nd Class Engineer ; 1st Class Motor Engineer ; 2nd Class Motor Engineer.	11 Aug. 1931	1 July 1928

\*The Engineers' Certificates recognised by Order in Council as having Imperial Validity do not include any Motor Certificates, or Motor Endorsements except where stated.

†The issue of Certificates of Imperial Validity by the Government of the separate States of Commonwealth of Australia ceased on the 1st October, 1923, the dates on which the issue of such certificates was undertaken by the Commonwealth Government.

‡The Stream Navigation Board was superseded by the Marine Board on the 21st December 1888. See Order in Council of 23rd November, 1893.

§The Marine Board was superseded by the Department of Navigation on the 17th March 1900.

||The issue of Certificates of Imperial Validity by the Provincial Governments of Bengal and Bombay ceased on the 1st April, 1929, the date on which the issue of such certificates was taken over by the Government of India.



## APPENDIX F

## Reading the Water-gauge

Notwithstanding that the reading of the water-gauge is made a special feature in the examination of Engineers, many boiler casualties result from the Engineer of the watch either not understanding the construction of the water-gauge fittings or not satisfying himself by actual trial that the cock, pipes, etc., are clear.

Unless a candidate under examination is able to prove that he understands how to verify the indications of the water-gauge, he will not be passed in practical knowledge. Failure in practical knowledge involves a candidate going to sea for further experience before re-examination.

The sketches. Figures 1, 2, 3, 4 and 5, Plate I, represent the usual methods of attaching water-gauge mountings to marine-boilers, the smoke-boxes being omitted, for convenience, from Figures 3, 4 and 5. The important features in each gauge and the method of verifying its indications are dealt with separately in the following notes.

*Referring to Figure 1 only*

In this case the water-gauge cocks are attached direct to the boiler, and the accuracy of the gauge when the boiler is under steam can be tested as follows:—

*First.*—Let B remain open, then close cock D and open cock E, and if steam issues it proves that cock B and the passage through the top fitting and gauge glass are clear. If no steam or water issues, either cock B or the passage through the top fitting and gauge glass is choked and the gauge cannot act properly until the obstruction is removed.

*Second.*—Close cock B and open D and E, and if water issues, cock D is clear. If no water or steam issues, either cock D or the passage from the boiler through the lower fitting is choked and must be cleared before the gauge can act properly.

*Referring to Figure 2 only*

In this case the gauge cocks are attached to a bent pipe of comparatively large diameter (at least 3 inches in the bore), the upper end of which communicates with the steam space, and the lower end with the water space of the boiler. Owing to the bore of the pipe being large, it is not likely to become choked or stopped under the ordinary conditions of working. The water-gauge is, therefore, in practically the same condition as if it were attached direct to the boiler, as in Figure 1. This gauge, when at work, is tested in precisely the same manner as the one shown in Figure 1,

Screw plugs are inserted at P.P. and Q.Q., by the removal of which the apertures in the pipes can be cleared, if necessary, by the insertion of a wire or rod when steam is down.

*Referring to Figure 3 only*

In this gauge there is an open communication from A to C through the column Y, and in order to "blow through the glass" it is only necessary to shut cocks D and B alternately, keeping E open. But to "blow through the water-gauge", including the pipes H and I, it is necessary, after blowing through the glass as described above to shut A and C alternately, at the same time keeping B, D and E open for such time as will ensure the complete discharge of the contents of the gauge and its connections. When B, D, and C are clear and A choked the steam lodging in the glass and in the pipe I leading from column Y to A becomes condensed and the

To face Appendix F.

PLATE I

Fig. 5

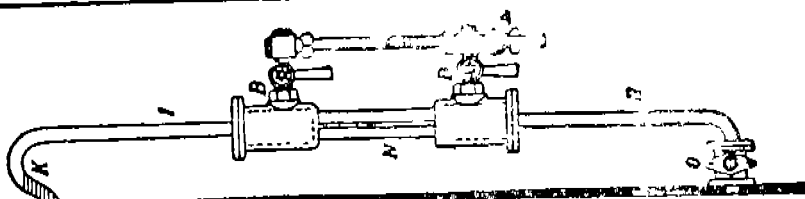


Fig. 4

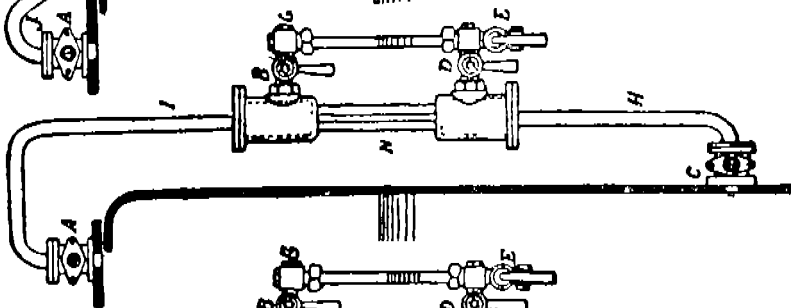


Fig. 3

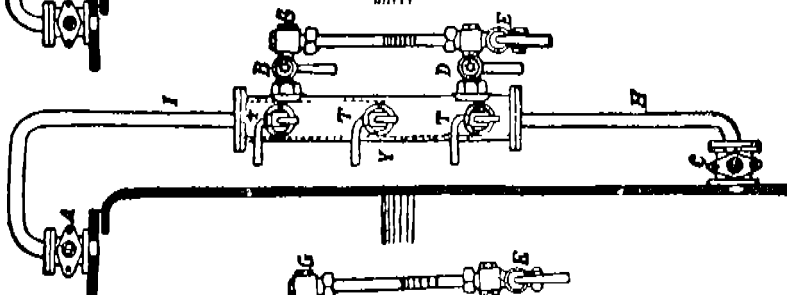


Fig. 2

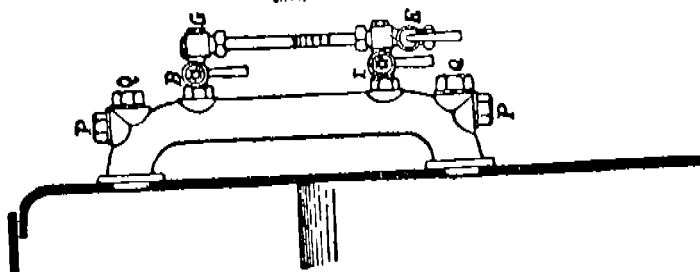
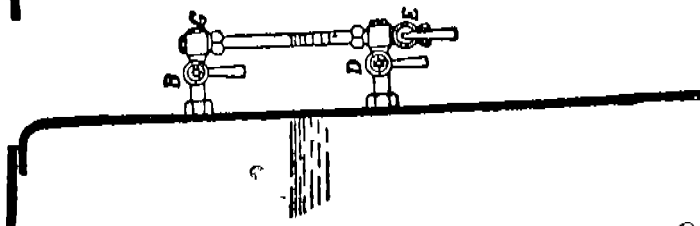
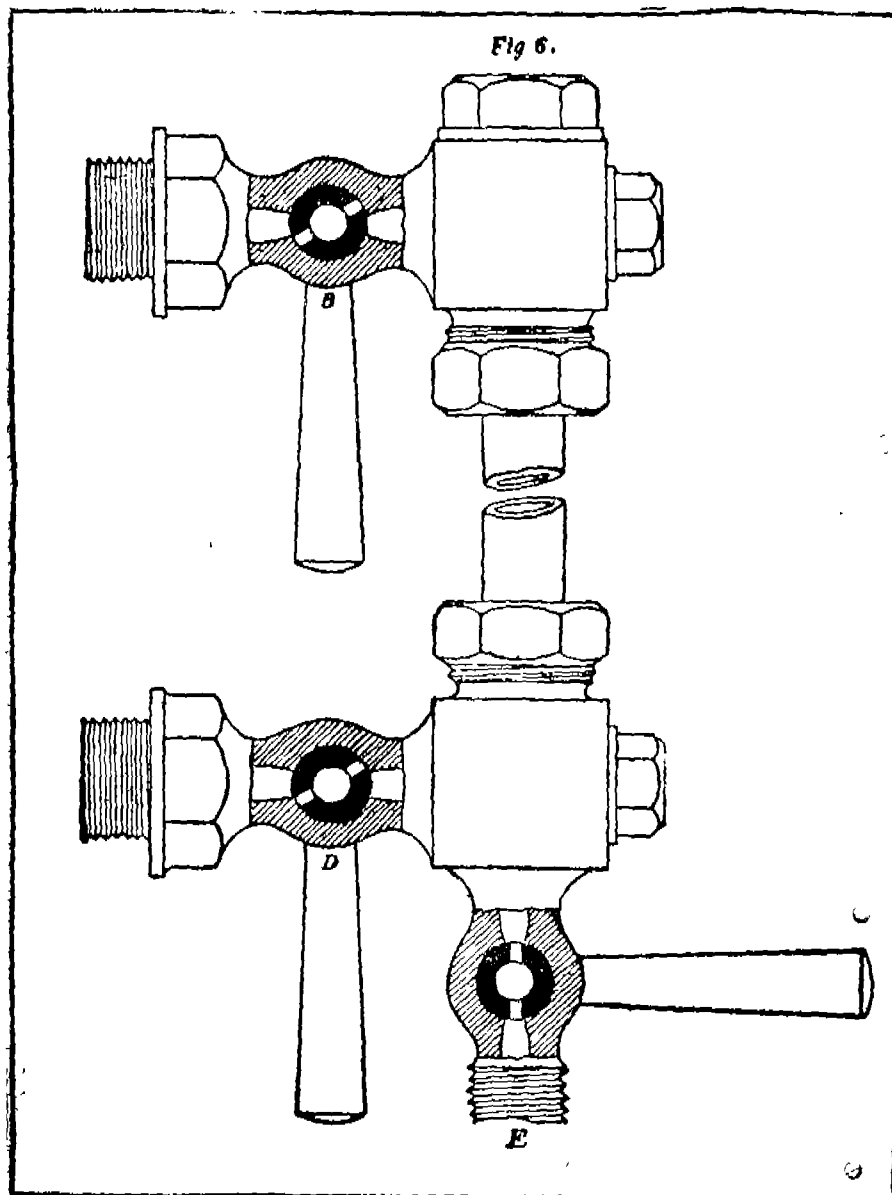


Fig. 1





water flowing through C to take its place rises in column Y and in the glass to a level above that of the water in the boiler. In other words the gauge shows a false level. If now E be opened and water is blown out, then on E being again closed the water in the gauge will rise higher than before and be still further misleading. On the other hand, when B, D and A are clear and C choked, the water, if any, in the glass is trapped and no longer rises and falls with the water in the boiler or with the motion of the vessel; it however, slowly rises in the glass owing to the condensation of the steam in the upper part of the gauge until such time as E is opened, when the whole of the water in the glass is blown out; and on E being closed, the glass does not show any water, notwithstanding that the water in the boiler may be at the proper level. When the test cocks T.T.T. are attached to column Y, as shown in Figure 3, they cease to be reliable when either cock A or C or the pipe in connection therewith is choked, or nearly choked; hence it is desirable that such test cocks should be fitted direct to the boiler and not to the column as shown.

*Referring to Figure 4 only*

Sometimes the water-gauge fittings are arranged as shown in Figures 4 and 5, with no passage up the column, the central portion (N) of the column being simply a pillar or connecting piece of any convenient section between the upper and lower portions to which the cocks B and D are attached.

By this arrangement double communications are obviated and there is no need for what is known as "double shut off" in testing the accuracy of the gauge. When, however, the gauges are constructed in this manner, the cocks B and D are unreliable as test cocks in the event of there being no glass in the gauge. This feature should be carefully noted. Moreover, when in working condition, the reduction of pressure in the glass which arises when E is opened causes the water in pipe H to rise above its normal level. This objectionable feature should also be noted.

*Referring to Figure 5 only.*

Sometimes there is a bend, L, in the steam pipe I leading from cock A to cock B. This has occasionally escaped observation when new boilers have been fitted on board ship. In most cases this bend arises from the pipe being led in an abnormal direction to escape other pipes, beams or fittings near the smoke-box. With such a bend the condensed steam collects in the pipe and falls to the bottom of the bend, and in time it completely fills the pipe from J to K. The steam from K down to the level of the water in the glass is thereby trapped and, as condensation proceeds, leads to a reduction of pressure in the pipe below that of the boiler and on equivalent rise of the water in the bend and also in the gauge glass. When the vessel is quiescent the water in the gauge glass increases in height until cock E is opened or until the pressure in the boiler is so much in excess of that in the lower part of pipe I as to cause the water in the bend to be blown into the gauge glass. In either case instantaneous change of water level in the glass ensues.

In the ordinary course of working, the phenomenon described above is more or less modified by the presence of air in the upper part of the gauge and by the rise and fall of the water in the boiler and gauge glass arising from the rolling or pitching motions of the vessel.

*Other Special Points to be Noted*

When cocks A and C are omitted, as in Figure 2, this is owing to the bore of the stand pipe being sufficiently large to enable it to be regarded as part of the boiler. Such pipes require, however, to be examined and cleared at intervals by passing a rod through the holes provided for the purpose at P.P. and Q.Q.

Cocks at A and C are not necessary for the testing of gauges arranged as shown in Figures 4 and 5. Candidates, however should be fully aware of the impossibility of testing the reliability of the indications of water-gauges arranged as in Figure 3 when the cocks A and C are absent, and of the effect which the choking of cock A or C, or pipe H or I, has on the indications of the test cocks T.T.T. when attached to column Y.

Many ships afloat are fitted with water-gauges as shown in Figures 3 and 4, and it is therefore specially important that engineer candidates should thoroughly understand their construction, the principle on which they act, and the steps which must be taken to keep them in an efficient condition.

When fitting a gauge glass into its place, it is specially important that it should not be placed so high as to prevent a clearing rod being inserted at G, Figures 1, 2, 3, 4 and 5. This defect, especially if it occurs in a water-gauge attached to a boiler subject to priming permits a rapid accumulation of scum around the top of the glass and results in the choking of the orifice leading from cock B to the gauge glass in each of the figures.

When a gauge glass is too short, or is placed either too high or too low in the fittings, it is also liable to become choked by the packing material being forced over its ends by the glands whilst being screwed up.

The use of unsuitable or insecure internal pipes in connection either with the ordinary glass gauge cocks of the description shown in Figure 1, or with test cocks which are joined to the boiler itself, should also be carefully guarded against.

Boiler casualties have resulted from the cocks B and D having the parts wrongly placed as shown in Figure 6, Plate II. In one case of that kind, which forms the subject of the Report No. 208 under the Boiler Explosions Act, the engineer in testing the water-gauge omitted to see that the passages in the cocks B and D were clear when the handles were in their proper working position. This defect could easily have been discovered if proper attention had been paid to the condition of the cocks. A defect of this nature may be due to faulty construction originally, or to the handle of the cock having been overstrained, and the neck twisted. Whether the passages in the plugs are fair and clear can, however, be verified in a few minutes. As an illustration, the water cock D, Figure 6, Plate II, can be verified by blowing through E with B shut then moving the handle of D to one side until it is just closed, and then to the other side until it is again just closed; the proper working position of the handle is about equally distant from each of the above positions. The other cocks can be verified in the same manner.

Another serious casualty occurred through the handle of the cock A, Figure 3, having been twisted from its original position relatively to the orifice of the cock, resulting in the cock being shut when apparently opened.

When a water gauge, that is clear in all its parts, has been thoroughly blown through, the water in the glass rises above the level at which it formerly stood, immediately the drain cock E is closed, but if left undisturbed for a time it gradually falls to its former position. The amount of the rise which occurs on these occasions depends chiefly on the temperature of the contents of the boiler and on the length of the pipes by which column Y is connected top and bottom to the boiler, but in cases where the gauge is of the description illustrated in Figures 3, 4 and 5, it amounts in high pressure boilers to about 4 inches, while the time occupied by the water in returning to its former level ranges from 30 to 40 minutes. The cause of this rise is two fold, namely, (a) the displacement of the comparatively cold water in the pipe H by hotter and proportionately lighter water from the boiler, and (b) a slight condensation of the steam and a corresponding fractional reduction of pressure in pipe I. The cause of the gradual subsidence of the water in the glass to its former level is also of a dual character,

namely, (a) the cooling of the water in pipe H, and (b) the diminution in the condensation of steam in pipe I owing to the collection therein of air released from the steam condensed.

These results will, however, be somewhat modified if the water in the boiler is of higher density than in pipe H and this will nearly always be the case owing to the condensation of the steam in the glass and upper fittings of the water gauge, causing the water in the lower part to be fresher than that in the boiler.

Candidates should understand the necessity for periodically blowing through the water-gauge on each boiler (no matter what the form may be) in a systematic and thorough manner, and in cases where a boiler is fitted with two water-gauges of keeping both in constant use; finally, they should realise the necessity for keeping the water-gauges well lighted, clean, and in all respects efficient.

## APPENDIX G

### List of text books

The books in the list below, from which a suitable choice may be made, are mentioned for the guidance of intending candidates for examinations for Certificates of Competency as Engineers in the Mercantile Marine, but candidates are advised to consult their teachers as to the text books they should study.

Title	Author	Publisher
Mathematics, 12s. 6d. . . . .	B. B. Low . . . . .	Longmans, Green & Co.
Mathematics for Engineers—		
Vol. I, 10s. 6d. . . . .	W. N. Rose . . . . .	Chapman & Hall, Limited.
Vol. II, 13s. 6d. . . . .		
Applied Mechanics for Engineers, 12s. 6d. . . . .	J. Duncan . . . . .	Macmillan & Co. Ltd.
Mechanics for Engineers, 6s. 6d. . . . .	A. Morley . . . . .	Longmans, Green & Co.
Mechanics applied to Engineering 2v. 14s. 6s. and 16s. each.	J. Goodman . . . . .	Ditto.
Applied Mechanics, 12s. 6d. . . . .	D. A. Low . . . . .	Ditto.
Strength of Materials, 12s. 6d. . . . .	A. Morley . . . . .	Ditto.
Materials and Structures, 15s. . . . .	E. H. Salmon . . . . .	Ditto.
Mechanical Testing Vol. 1, 21s., Vol. 2 25s. . . . .	R. G. Batson & J. H. Hyde.	Chapman & Hall, Ltd.
Theory of Machines, 12s. 6d. . . . .	Toft & Kersey . . . . .	Sir Isaac Pitman & Sons Ltd.
Metallurgy, 17s. 6d. . . . .	E. Gregory . . . . .	Blackie & Son, Ltd.
Hydraulics and its Applications, 16s. . . . .	A. H. Gibson . . . . .	Constable & Co., Ltd.
Machine Drawing and Design, 7s. 6d. . . . .	W. Abbott . . . . .	Blackie & Son, Ltd.
Elements of Machine Design, 2 Vols. 12s. 6d. and 15s. each.	Unwin & Mellanby . . . . .	Longmans, Green & Co.
Steam and other Engines, 6s. . . . .	J. Duncan . . . . .	Macmillan & Co. Ltd.
The Theory of Heat Engines, 12s. 6d. . . . .	W. Inchley . . . . .	Longmans, Green & Co.

Title	Author	Publisher
Steam Turbine Operation. 12s. 6d.	W. J. Kearton	Sir Isaac Pitman & Sons, Ltd.
The Marine Steam Turbine. 30s.	J. W. M. Sothorn	The Technical Press.
Introduction to Internal Combustion Engineering. 6s.	J. B. O. Sneedon	Longmans, Green & Co.
Diesel Engine Design. 21s.	H. F. P. Purday	Constable & Company.
Marine Diesel Oil Engines. 45s.	J. W. M. Sothorn	The Technical Press.
Elementary Electrical Engineering. 7s. 6d.	Clayton & Shelley	Longmans, Green & Co.
Electrical Technology. 12s. 6d.	H. Cotton	Sir Isaac Pitman & Sons, Ltd.
Electricity for Marine Engineers. 5s.	W. S. Ibbotson	E. & F. N. Spon, Limited.
Motor & Dynamo Control (Theory and Practice). 10s. 6d.	Do.	Ditto.
Text Book on Theoretical Naval Architecture. 15s.	E. L. Attwood	Longmans, Green & Co.
Know Your Own Ship. 12s.	Thomas Walton	Charles Griffin & Co. Ltd.
Construction and Maintenance of Steel Vessels. 30s.	Do.	Ditto.

Candidates are advised to read technical journals and the Transactions of their professional institutions. The following Circulars, etc. issued by the Mercantile Marine Department of the Board of Trade might also be read with advantage: Circular 1650—Precautions to be observed in the use of Oil Fuel. Circular 1677—Simultaneous use of coal and oil as fuel, Notice No. 106—Fires in Steamship bunker and cargo coal—Spontaneous Combustion—Notice M. 140—Prevention and extinction of fire on cargo ships. Notice M. 146, Prevention of fire in cargo ships using oil fuel, Special Report No. 5—Fires in Steamship Bunkers and Cargo Coal.

## APPENDIX H

### Syllabus for Extra First Class Examination

Candidates are expected to show a more extensive practical and theoretical knowledge of all the items in the syllabuses for First and Second Class candidates, together with a higher knowledge of mathematics, including elementary calculus. Questions will be set to test the candidate's knowledge of technological investigations which have influenced engineering practice and important developments arising therefrom free from the limitations of the examination syllabus.

In addition to the foregoing, the candidate should be prepared to be examined in:—

(a) his ability to write good English and to express himself suitably in reports and business letters or essays on subjects connected with his profession and in subjects of general interest;

(b) advanced theoretical and applied mechanics; strength of materials; theory of structures and metallurgy of iron and steel and of the non-ferrous metals used in marine practice;

(c) thermodynamics and properties of gases; Rankine cycle, thermal efficiency and efficiency ratio; solid; liquid and gaseous fuels; calorimetry analysis by weight and volume of flue and exhaust gases;

(d) theoretical and practical naval architecture, principles and practice in ship construction and repairs; determination of the locus of centre of buoyancy, metacentric heights; centre of gravity; statical and dynamical stability at large angles; determination of the effect of free liquid on stability and trim and of loss of buoyancy with heavy or light cargo; resistance and powering of ships; analysis of speed trials; steering; the propeller theory;

(e) electrotechnology; the general theory, operation and characteristics of D.C. and A.C. machinery and transformers, control gear, protective devices and instruments including energy meters; the principal considerations governing the design and operating characteristics of those machines used for propulsion, their ancillary equipment and other auxiliary machinery used on board ship; theoretical and practical consideration of the methods of power distribution; lighting arrangements and gaseous discharge tubes;

(f) the theoretical principles, constructional details and operation of all types of engines, steam boilers and other pressure vessels, including safety valves, other mountings and fittings;

(g) engineering drawing and design; to produce a working drawing of any part of marine machinery, boilers, mechanical equipments, parts of ship structure involving the arrangement of constituent members from given particulars. Two subjects will be given, one only to be attempted.

[No. 104-M. I. (10)/49.]

S. RAUGANATHAN, Joint Secy.

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## MINISTRY OF FOOD AND AGRICULTURE

New Delhi, the 8th March, 1951

**S.R.O. 356.—Corrigendum.**—In the Notification of the Government of India in the Ministry of Agriculture No. S.R.O. 1002, dated the 6th December, 1950, published in the Gazette of India Extraordinary, dated the 6th December 1950, the following corrections should be made:—

1. In Schedule I—

(i) For "Rs 29/3/-" against West Bengal, Read "Rs. 30/8/-".

(ii) For "Rs. 30/12/-" against Hyderabad, Read "Rs. 29/12/-".

2. In Schedule II—

(i) For "Rs. + -/6/-" against AA25 grade, Read "Rs. + -/6/6".

(ii) For "Rs. — -/10/-" against F25 grade, Read "Rs. — -/10/6".

3. In Schedule III—

For "27" in the first line of the heading, Read "E-27".

4. In Schedule IV—

(i) For "Katauli" in S. No. 15 under U. P. West, Read "Khatauli".

(ii) For "Dcab" in S. No. 33 under U. P. West, Read "Doab".

(iii) For "Sakli" in S. No. 3 under Bihar North, Read "Sakri".

(iv) For "North Blhari" in S. No. 10 under Bihar North, Read "New Swadesh".

[No. SV-101(1)/50-51.]



*New Delhi, the 17th March 1951*

**S.R.O. 357.**—In exercise of the powers conferred by clause 9 of the Sugar and Gum Control Order, 1950, the Central Government is pleased to direct that the following further amendments shall be made in Ministry of Agriculture Notification No. S.R.O. 792, dated the 19th October 1950:—

In "The Schedule" to the said Notification on page 878A of the Gazette—

Under the column "Designation of Officer" after the entry "Director of Controlled Commodities, Travancore-Cochin," add "Deputy Commissioner of Civil Supplies, at Trivandrum and Ernakulam."

Under the column "Extent of Powers," against the above entry, add "All."

[No. SV-105(3)/50-51]

**S.R.O. 358.**—In exercise of the powers conferred by clause 11 of the Sugar and Gum Control Order, 1950, the Central Government is pleased to direct that the following further amendments shall be made in the Ministry of Agriculture Notification S.R.O. 792A, dated the 19th October, 1950, published in the *Gazette of India Extraordinary*:—

In "The Schedule" to the Notification—

(1) Against item "8. Uttar Pradesh" under column (2)—

Add "(ix) All Sub-Divisional Officers and District Supply Officers in U.P.", and

Against the above entry, under column (3)—

Add "7(ii) and 8, acting under general or special directions of the District Magistrates in respect of any matter in this behalf."

(2) Against item "16. Travancore and Cochin", under column (2)—

Add "(ii) Deputy Commissioner of Civil Supplies, Trivandrum."

"(iii) Deputy Commissioner of Civil Supplies, Ernakulam."

Against the above entries, under column (3)—

Add "6, 7(ii) and 8."

[No. SV-105(3)/50-51]

N. T. MONE, Joint Secy.

*New Delhi, the 17th March 1951*

**S.R.O. 359.**—In exercise of the powers conferred by clause 2(a) of Vegetable Oil Products Control Order 1947, as subsequently amended vide Ministry of Agriculture Notification No. 2-VP(2)/48, dated the 9th October, 1948, the Vegetable Oil Products Controller for India is hereby pleased to confer upon the Civil Supplies Officer, Bilaspur (Sumla Hills), the powers of the Controller under clause 8-A of the said Order.

[No. 2-VP(2)/51.]

N. T. MONE,

Vegetable Oil Products Controller for India.

## MINISTRY OF HEALTH

*New Delhi, the 9th March 1951*

**S.R.O. 360.**—It is hereby notified for general information that in exercise of the powers conferred by clause (e) of sub-section (1) of section 3 of the Delhi Joint Water and Sewage Board Act, 1926, (XXIII of 1926), read with sub-rule (1) of rule 8 of the General Rules made thereunder the Central Government has re-nominated the Deputy Secretary, Ministry of Finance (Delhi State) and the Superintending Engineer (Delhi State) as members of the Delhi Joint Water and Sewage Board, for a period of three years with effect from the 21st October, 1950.

[No. F. 4-1/51-LSG.]

S. DEVANATH, Under Secy.

*New Delhi, the 12th March 1951*

**S.R.O. 361.**—In exercise of the powers conferred by sections 12 and 33 of the Drugs Act, 1940 (XXIII of 1940), the Central Government hereby directs that the following further amendments shall be made in the Drugs Rules, 1945, the same having been previously published as required by the said sections, namely:—

In the said Rules—

In the first proviso to rule 44, for the figure 14 in the two places where it occurs, the figure 15 shall be substituted.

(2) In Schedule A, in clause (1) of form 9—

- (a) after the figures "1945" the words "excepting Penicillin and preparations of Penicillin for parenteral administration and Streptomycin" shall be inserted;
- (b) after the words "British India" the words "in the case of Penicillin and preparations of Penicillin for parenteral administration and Streptomycin, the said applicant shall be an authorised Agent in India" shall be added.

(3) In Schedule C—

- (a) In item 11 for the word "Penicillin" the words "Penicillin and preparations of Penicillin for parenteral administration" shall be substituted.
  - (b) (i) After item 11 the following item shall be inserted, namely:—  
"12. Streptomycin".
  - (ii) Items 12, 13 and 14 shall be renumbered as items 13, 14 and 15, respectively.
- (4) In Schedule C(1), after item 8, the following item shall be inserted, namely:—  
"9. Preparations containing Penicillin not in a form to be administered parenterally."

[No. F. 7-14/47-D.]

J. N. SAKSENA, Under Secy.

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### MINISTRY OF RAILWAYS

(Railway Board)

*New Delhi, the 8th March 1951*

**S.R.O. 362.**—In exercise of the powers conferred by clauses (f) and (g) of sub-section (1) of section 47 of the Indian Railways Act, 1890 (IX of 1890), read with the notification of the Government of India in the late Department of Commerce and Industry No. 801, dated the 24th March, 1905, the Railway Board hereby makes the following further amendment in the notification of the Government of India in the late Railway Department (Railway Board) No. 1080-T, dated the 18th February 1926, namely:—

In para. 17 of the said notification after the word 'curtailed' the words "by the Railway Administration" shall be inserted.

[No. 995-TG]

S. S. RAMASUBBAN, Secy.

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### MINISTRY OF TRANSPORT

LIGHT HOUSES

*New Delhi, the 17th March 1951*

**S.R.O. 363.**—In exercise of the powers conferred by sub-section (1) of Section 4 of the Indian Lighthouse Act, 1927 (XVII of 1927), the Central Government hereby directs that in the notification of the Government of India in the late Ministry of Commerce No. 319-M.II/50-M.T., dated the 12th August 1950, against the entry "Chairman" for the words "Secretary to the Government of India, Ministry of Commerce" the words "Secretary to the Government of India, Ministry of Transport" shall be substituted.

[No. 319-M.II(1)/50-M.T.]

H. C. SARIN, Dy. Secy.

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### MINISTRY OF COMMUNICATIONS

POSTS AND TELEGRAPHS

*New Delhi, the 9th March 1951*

**S.R.O. 364.**—In exercise of the powers conferred by sub-section (3) of section 1 of the Telegraph Wires (Unlawful Possession) Act, 1950 (LXXIV of 1950), the Central Government hereby appoints the 1st day of April, 1951 as the date on which the said Act shall come into force in the whole of India (excluding Jammu and Kashmir).

[No. NM.30-4/50.]

**S.R.O. 365.**—In exercise of the powers conferred by section 8 of the Telegraph Wires (Unlawful Possession) Act, 1950 (LXXIV of 1950), the Central Government hereby make the following Rules:

1. *Short title.*—These rules may be called the “Rules for the prevention of unlawful possession of Telegraph Wires”.

2. *Definitions.*—In these Rules, unless the context otherwise requires,—

(a) ‘Act’ means the Telegraph Wires (Unlawful Possession) Act (LXXIV of 1950).

(b) ‘Department’ means the Indian Posts and Telegraphs Department.

(c) ‘Divisional Engineer’ means any of the Divisional Engineers of the Department, incharge of Telegraph or Telephone Divisions at stations specified in Appendix ‘B’ of these Rules.

(d) ‘Declarer’ means a person in possession of telegraph wires and who makes a declaration in writing as required by rule 2 of these Rules.

3. A declaration under section 3 of the Act shall be in the form shown in Appendix ‘A’. The form should be sent by registered post (Acknowledgment Due) to the Divisional Engineer of the station nearest to his place of residence or business.

4. The Divisional Engineer may, if he thinks fit, on receipt of the declaration form, arrange for inspection of the declared stocks.

5. *The Price at which and the Authority to whom Wires may be sold.*—For the purposes of the proviso to section 4, every Divisional Engineer shall be the authority to whom wires may be sold by a declarer and the price at which it may be sold shall be Rs 110/- per Cwt.

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#### APPENDIX ‘A’

##### *Declaration Form*

- (1) Name (in full)
- (2) Full address of the declarer.
- (3) Full address where telegraph wires are stocked.

	<i>Gauge</i>	<i>Quantity</i>
(4) Quantity of telegraph wires in stock.	150 lbs	_____lbs
	200 lbs	_____lbs
	300 lbs	_____lbs

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I declare that the particulars contained in the above statement are correct.

Place

Dated the                      1950.

Signature of the Declarer.

To

The Divisional Engineer,  
Telegraphs/Telephones,  
Incharge

Division,

[NOTE.—This declaration form should be filled in duplicate and sent by Registered Post (Acknowledgment Due) to the Divisional Engineer of the Posts and Telegraphs Department at the nearest station.]

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#### APPENDIX ‘B’

##### *List of Divisional Engineers of the Department*

- (1) Calcutta (West).
- (2) Jalpaiguri (Independent Sub-Division).
- (3) Patna.
- (4) Ranchi.

- (5) Shillong.
- (6) Cuttack (Independent Sub-Division).
- (7) Ahmedabad.
- (8) Bombay.
- (9) Poona.
- (10) Rajkot.
- (11) Ajmer
- (12) Indore
- (13) Nagpur
- (14) Jaipur (Telephones)
- (15) Jullundur
- (16) Ambala
- (17) Bangalore
- (18) Madras
- (19) Tiruchirpally
- (20) Vizagapatnam
- (21) New Delhi (Telephones)
- (22) Agra
- (23) Lucknow
- (24) Kanpur

[No. NM.30-4/50.]

K. V. VENKATACHALAM, Dy. Secy.

## MINISTRY OF LABOUR

*New Delhi, the 7th March 1951.*

**S.R.O. 366.**—In pursuance of clause (c) of sub-section (2) of section 7, read with section 24, of the Payment of Wages Act, 1936 (IV of 1936), the Central Government hereby authorises the deduction by a colliery company from the wages of persons employed by it and recruited through the Gorakhpur Labour Organisation who, in accordance with the terms of their employment, are entitled to supply of rations as an amenity, of the value of such rations up to a maximum of 75 per cent. of wages.

[No. Fac.61(53).]

S. NEELAKANTAM, Dy. Secy.

## CORRIGENDA

*New Delhi, the 12th March 1951*

**S.R.O. 367.**—On pages 148, 149 and 151 of the *Gazette of India*, Part II—Section 3, dated the 3rd February, 1951, containing the award of the Industrial Tribunal, Calcutta in the matter of an industrial dispute between the General Assurance Society Ltd., Calcutta, and their employees in the General Department, the following corrections shall be made:

- (i) On page 148, paragraph 2, line 10, the name 'Shri Profulla Kumar Dey' shall be substituted for the name 'Shri Probodh Kumar Dey'.
- (ii) On page 149, paragraph 2, the name 'Shri Profulla Kumar Dey (41)' shall be substituted for the name 'Shri Atul Chandra Roy' wherever it occurs in that paragraph.
- (iii) On page 151, paragraph 3, in the margin, the name 'Atul Chandra Roy (16)' shall be substituted for the name 'Profulla Kumar Dey (41)'.

[No. LR.2(253).]

**S.R.O. 368.**—On pages 265-272 of the *Gazette of India*, Part II—Section 3, dated the 24th February 1951, containing the award of the Industrial Tribunal, Dhanbad, in the industrial dispute between certain collieries in West Bengal and their workmen in respect of the rates of wages of time-rated trammers, the following corrections shall be made—

(1) In paragraph 23 of the award, line 4, for the figures "Rs. 1-11-7½" read "Rs. 1-12-1½".

(2) In paragraph 23 of the award, line 5, for the figures "Rs. 1-11-8" read "1-12-2" [No. LR-2(279).]

N. C. KUPPUSWAMI, Under Secy.

### MINISTRY OF FINANCE

*New Delhi, the 7th March 1951*

**S.R.O. 369.**—In exercise of the powers conferred by the proviso to Article 309 of the Constitution the President hereby directs that the following further amendments shall be made in the Civil Service Regulations, namely:—

In the Schedule of appointments carrying additional pensions, below Article 475-A of the said Regulations, under the head "A—Upper Grade", after the entry "Director General of Observatories", the following entries shall be inserted, namely:—

"Secretaries to the Government of India".

"Additional Secretaries to the Government of India".

"Joint Secretaries to the Government of India".

[No. F.1(1)-E.V/51.]

B. L. BATRA, Dy. Secy.

### (Department of Economic Affairs)

*New Delhi, the 14th March 1951*

**S.R.O. 370.**—In exercise of the powers conferred by section 53 of the Banking Companies Act, 1949 (X of 1949), the Central Government, on the recommendation of the Reserve Bank of India, hereby declares that the provisions of section 24 of the said Act, in so far as they relate to the liabilities in the "Closed Fund" or "Old Fund" shall not apply to the following banking companies, namely:—

1. Lakshmi Commercial Bank Ltd.
2. New Bank of India Ltd.
3. Traders' Bank Ltd.
4. Commercial Bank of India Ltd.
5. Prabhat Bank Ltd.
6. First National Bank Ltd.
7. Punjab & Kashmir Bank Ltd.
8. Frontier Bank Ltd.
9. Chawla Bank Ltd.
10. Sahukara Bank Ltd.
11. National Bank of Sialkot Ltd.
12. Colony Ltd.

[No. D.1230-F.I/51.]

**S.R.O. 371.**—In exercise of the powers conferred by section 53 of the Banking Companies Act, 1949 (X of 1949), the Central Government, on the recommendation of the Reserve Bank of India, hereby declares that the provisions of section 7 of the said Act shall not apply to the American Express Co. Inc., the Comptoir National D'Escompte de Paris, the Banco Nacional Ultramarino and the Netherlands Trading Society Ltd.

[No. D.1268-FI/51]

S. K. SEN, Dy. Secy

**CENTRAL BOARD OF REVENUE****CUSTOMS***New Delhi, the 17th March 1951*

**S.R.O. 372.**—In exercise of the powers conferred by Section 4 of the Land Customs Act, 1924 (XIX of 1924), the Central Board of Revenue directs that the following further amendment shall be made in its Notification No. 7-Customs, dated the 27th February 1948, namely:—

In the Schedule annexed to the said Notification under the heading 'Khasi and Jaintia Hills District' after the entry relating to 'Shillong' the following entry shall be inserted, namely:—

'Borsora .....(a) Borsora-Taherpur Road.

(b) Jadukata River.

[No. 30]

D. P. ANAND, Secy.

**MINISTRY OF FINANCE (REVENUE DIVISION)****CENTRAL EXCISES***New Delhi, the 17th March 1951*

**S.R.O. 373.**—In exercise of the powers conferred by section 37 of the Central Excises and Salt Act, 1944 (I of 1944), the Central Government hereby directs that the following further amendments shall be made in the Central Excise Rules, 1944, namely:—

In rule 93 of the said Rules, for condition (b), the following shall be substituted, namely:—

"(b) each such packet, whether retail or wholesale, shall be enclosed by, and at the expense of, the manufacturer, in a wrapper or other outer covering, and, unless exempted by the Central Board of Revenue by general or special order, each such packet, or the manufacturer's label affixed thereto, shall bear in clearly discernible characters, the following particulars—

(i) the name of the factory or a distinguishing mark which may take the form of a special design whereby the origin of the products can be traced;

(ii) the number of his licence in Form L-4; and

(iii) the trade brand of the product.

Specimens of all such wrappers, outer coverings or labels shall be submitted to the Collector for his approval before they are brought into use."

[No. 9.]

**S.R.O. 374.**—In exercise of the powers conferred by section 37 of the Central Excises and Salt Act, 1944 (I of 1944), the Central Government hereby directs that the following further amendments shall be made in the Central Excise Rules, 1944, namely:—

In the said Rules:—

(1) In rule 36, after the words, "net weight of products of each variety produced", the following shall be inserted, namely:—

"and such officer shall record the particulars in his Survey Book in the proper form, and the grower shall attest the relative entry in the Book in token of his having given a true declaration";

(2) In rule 37, after the words, "quantity removed to his curing premises", the following shall be inserted, namely:—

"and such officer shall record the particulars in his Survey Book in the proper form, and the curer shall attest the relative entry in the Book in token of his having given a true declaration";

(3) In Appendix I, under the heading "Registers", in column 3, in the entry relating to item 37A, under the title "Rule No." for the figures and word "15 and 16" the figures and word "15, 16, 36 and 37" shall be substituted;

(4) In the forms included in Appendix I in Central Excise Series No. 37A, "Survey Book"—

- (a) For the words and figures within brackets "(Rules 15 and 16)" the words and figures within brackets "(Rules 15, 16, 36 and 37)" shall be substituted; and
- (b) for the word "tobacco" occurring in column 16 of the form, the word "product" shall be substituted.

[No. 10.]

#### CUSTOMS

*New Delhi, the 17th March 1951*

**S.R.O. 375.**—In exercise of the powers conferred by section 23 of the Sea Customs Act, 1878 (VIII of 1878), the Central Government directs that the following further amendment shall be made in the notification of the Government of India in the Ministry of Finance (Revenue Division), No. 42-Customs, dated the 9th October 1948, namely:—

In the Schedule to the said notification, the entry regarding Tariff Item No. 46(3) Cotton, raw shall be omitted.

[No. 29.]

D. P. ANAND, Dy. Secy.

#### INCOME-TAX

*New Delhi, the 14th March 1951*

**S.R.O. 376.**—In exercise of the powers conferred by section 60A of the Indian Income-tax Act, 1922 (XI of 1922), the Central Government hereby makes the following amendment to the Part B States (Taxation Concessions) Order, 1950.

In the said Order, to sub-paragraph (1) of paragraph 13 the following proviso shall be added, namely:—

"Provided that nothing in this sub-paragraph shall affect any demand made or collected under section 18A of the Act before the 2nd day of December 1950."

[No. 24.]

**S.R.O. 377.**—In exercise of the powers conferred by section 60A of the Indian Income-tax Act, 1922 (XI of 1922), the Central Government is pleased to direct the following further amendment shall be made in the Merged States (Taxation Concessions) Order, 1949, namely:—

In paragraph 13 of the said Order—

For the existing clause (iv), the following shall be substituted, namely:—

"(iv) The *bona fide* annual value of the palaces of Rulers of Indian States which are declared by the Central Government as the official residences of such Rulers."

[No. 25.]

**S.R.O. 378.**—In exercise of the powers conferred by section 60A of the Indian Income-tax Act, 1922 (XI of 1922), the Central Government is pleased to direct that the following amendment shall be made in the Part B States (Taxation Concessions) Order, 1950, namely:—

In paragraph 15 of the said Order—

For the existing clause (iii), the following shall be substituted, namely:—

"(iii) The *bona fide* annual value of the palaces of Rulers of Indian States which are declared by the Central Government as the official residences of such Rulers."

[No. 26.]

P. C. PADHI, Addl. Secy.

